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STATISTICAL REVIEW

OF

ENGLAND AND WALES

FOR THE YEAR

1932

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TEXT

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TEXT.

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Table 24 (Page 265). Wigan.

All Causes, Age 75—Males. For 82 **read** 74.
Females. For 74 **read** 82.

Table 24 (Page 298). Oxford Administrative County. Aggregate of Urban Districts.

Cause No. 9. Age 25—Males. Number should appear as 4.

TABLES: PART II.—CIVIL.

Table G (Page 61). All Spinsters. Age 45—49. For 2,264 **read** 2,267.

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Note.—Of the tables referred to below, those numbered in Arabic will be found in "Tables, Part I—Medical," and those lettered in "Tables, Part II—Civil," while those numbered in Roman numerals appear in the text of this volume.

DEATHS.

The deaths of 484,129 persons were registered in England and Wales during 1932, 245,715 of these being males and 238,414 females.

This number is 1·5 per cent. below that for 1931.

Deaths of non-civilians, which numbered only 387, are now allocated to their administrative area of residence, and are included in all 1932 tables.

Death-Rate.—The 484,129 deaths correspond to a rate of 12·0 per 1,000 of the estimated population. When standardized* to correct for the deviation of the sex and age distribution of the population, as shown in Table XIX, from that of the standard population of 1901, this death-rate is reduced to 9·7.

As the population of this country in 1901 included relatively few infants and old people it forms a standard exceptionally favourable to low mortality. Its use for this purpose accordingly yields comparatively low standardized rates all round. In order to correct any wrong impression which might arise from this fact, and to provide standardized rates for this country comparable with those of countries using the standard recommended by the International Statistical Institute (a composite population made up of those of a large number of European countries in 1900 or 1901), rates calculated upon the latter by the method suggested by the Institute† are shown in Table XIX, as well as those based on the 1901 English standard, which is that always used elsewhere in this Review. It will be seen that use of the less favourable standard increased the rate from 9·7 to 10·9 per thousand.

The rate of 9·7 per 1,000 is seen from Table 3 (Part I) to be the lowest recorded, except in the year 1930, and is below the standardized rate of 10·3 for the quinquennium 1926–30.

When compared with 1931 the rates were lower at every age shown in Table XIX, the fall exceeding 5 per cent. at 0–5 and 35–55 for males and at 10–20 for females. For most causes of death the standardized rates in Table 8 were below the average for the

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* The term "standardized death-rate" means the death-rate corrected for differences of sex and age constitution of the population. For a full description of the methods employed for this "standardization" *see* The Registrar-General's Decennial Supplement—1921, Part III (pages xxxiii—xlii), Standardized death-rates for the sexes separately quoted in this Review are based upon the age distribution of persons of undistinguished sex in the general population of England and Wales in 1901.

† Annuaire International de Statistique, 1917, p. viii.

preceding five years, the comparison on this basis being specially favourable for influenza, whooping cough, diphtheria, encephalitis lethargica, respiratory diseases, tuberculosis, rheumatic fever, valvular disease of the heart, general paralysis and cirrhosis of the liver. The causes which showed appreciable increases over the preceding five-year average were cerebro-spinal fever, acute poliomyelitis, cancer in males, diabetes, pernicious anæmia, leukæmia and lymphadenoma, erysipelas, carbuncle and boil, diseases of the nasal sinuses, ear and mastoid, epilepsy, disseminated sclerosis, heart diseases other than valvular, appendicitis, liver and gall-bladder diseases other than cirrhosis, disease of the prostate and suicide.

Mortality at different portions of the year.—Table 4 indicates that the crude death-rate was below the corresponding rate in the decade 1921–30 for each quarter except the September quarter, but was higher than in 1930 or 1931 in the June and September quarters. Table 31 shows that the third quarter was unusually warm when judged by the mean air temperature at Greenwich, this having been exceeded in recent years only in 1921 and 1929. The temperature in August was exceptionally high in each meteorological district.

The contributions of the four quarters to the year's mortality in quinquennial periods since 1851, and in 1931 and 1932, are shown in Table I (below). It should be noted, however, that the crude quarterly

Table I.—Quarterly Death-rates in each quinquennium 1851–1930 and in 1931 and 1932 with ratio to yearly rate taken as 100.

	Death-rate per 1,000 living.				Ratio to yearly rate taken as 100.			
	March.	June.	September.	December.	March.	June.	September.	December.
1851–55	25·3	22·5	21·0	21·9	111	99	93	96
1856–60	24·1	21·6	19·6	21·9	111	99	90	100
1861–65	25·7	22·0	20·4	22·3	114	97	90	99
1866–70	24·7	21·6	21·5	22·0	110	96	96	98
1871–75	24·3	21·1	20·4	22·1	110	96	93	100
1876–80	23·2	20·7	18·8	20·6	112	100	90	99
1881–85	21·4	19·3	17·6	19·4	110	99	91	100
1886–90	21·7	18·0	17·0	18·9	115	95	90	100
1891–95	21·8	18·5	16·4	18·1	117	99	88	97
1896–1900	19·5	16·6	17·5	17·2	110	94	99	97
1901–05	17·9	15·2	14·9	16·1	112	95	93	101
1906–10	17·4	14·1	12·6	14·7	118	96	86	100
1911–15	16·9	13·7	12·7	14·0	118	96	89	98
1916–20	17·5	13·5	10·9	15·8	122	94	76	110
1921–25	15·1	11·9	9·6	12·0	124	98	79	98
1926–30	15·9	11·5	9·4	11·6	131	95	78	96
1931	16·5	11·5	9·6	11·7	134	93	78	95
1932	15·4	11·6	9·7	11·5	128	97	81	96

mortalities in Tables I and 4 do not represent the full improvement which would be registered since 1901 if these rates were standardized.

The percentage contribution of the March quarter to the year's mortality, which has shown a progressive increase since 1896–1900, was lower in 1932 than in the recent years 1922, 1924, 1927, 1929 and 1931 when influenza was prevalent, but it exceeded the average figure for any quinquennium before 1926–30. As in 1922, 1924 and 1929, the death-rate in the December quarter was lower than in the June quarter.

The present stability of the death-rate in the last three quarters of the year is more apparent from the experience during the last ten years (Table 4). The average mortality in these quarters during the decennium ranged only from 10·7 to 11·4, while the death-rate in the March quarter fluctuated between 13·2 in 1923, when the mean temperature at Greenwich in this quarter was the highest in 83 years' records, and 20·9 in 1929, an influenza year when the first quarter was exceptionally cold. So long as these tendencies continue, the mortality experienced in the March quarter virtually determines the death-rate for the year.

The numbers of deaths from different causes which occurred in each of the first nine months of the year are set out in Table 23.

Mortality of each sex.—The excess of male over female mortality in 1932 was 25 per cent., compared with 27 in 1930, and 26 in 1931. Comparing the sex rates age by age, male excess occurred at each age group, this excess being greater at ages 5–10, 15–20 and 65–75, and smaller at ages 35–45 than in any of the preceding nine years. These changes recorded in Table II are derived from Table 5, with substitution for 1911–15 and 1916–20 of rates based on total male population and deaths registered in this country for those in Table 5, which refer to civilian males only.

Table II shows that male excess is lowest at ages 10–15 for which period a female excess was the rule until 1927. At 5–10 the male excess has increased since 1918 to 16 per cent., and at 15–20 the excess has also been increasing in recent years.

In 1932 the maximum disparity in sex mortality is reached at ages 55–65, after which it decreases again with advancing age. Only in extreme old age has the female mortality not declined more than the male since the middle of last century.

The causes of death accounting for this large male excess may be gathered from Table 8, in which the mortality disadvantage of females arising from their greater age is neutralized by reference of the rates for both sexes to a common population basis.

The causes chiefly accounting for male excess, with the contribution of each to its total of 2,146 per million, are seen to be, in order of importance, cancer of organs other than those of reproductive function (396), accident (305), heart disease (282), pneumonia (237),

tuberculosis (187), digestive diseases (175), and arterio-sclerosis (126). These causes jointly contribute 80 per cent. of the total male excess.

Table II.—Mortality of Males per cent. of that of Females at Various Ages from 1841–45 onwards. (*See* **Table 5.**)

	All Ages Standardized.	0–	5–	10–	15–	20–	25–	35–	45–	55–	65–	75–	85– and upwards
1841–45	109	117	102	92	88	105	95	101	114	111	111	109	106
1846–50	108	116	103	95	91	104	94	99	113	112	111	109	107
1851–55	110	116	104	98	90	103	97	102	118	114	112	110	106
1856–60	109	115	99	96	90	102	96	103	118	115	111	108	107
1861–65	111	115	102	98	93	105	100	109	122	118	112	109	110
1866–70	113	115	107	100	94	106	105	113	124	120	115	109	111
1871–75	115	117	108	100	97	109	109	119	128	121	114	111	110
1876–80	116	118	107	97	96	108	109	119	129	122	114	112	111
1881–85	115	118	102	97	96	102	104	117	127	122	116	113	112
1886–90	116	119	100	97	98	106	107	117	129	122	117	112	114
1891–95	116	119	98	96	100	108	108	118	128	121	115	111	110
1896–00	118	118	98	96	106	120	116	122	129	124	117	113	109
1901–05	119	119	97	95	107	119	118	121	130	128	119	115	110
1906–10	120	119	97	95	107	121	118	121	129	128	121	115	113
1911–15	122	120	100	95	111	122	124	126	132	133	124	118	115
1916–20	124	121	100	92	114	122	124	131	135	137	132	121	111
1921–25	122	124	104	100	100	113	114	130	132	133	127	119	110
1926–30	124	125	110	105	106	108	112	134	140	136	130	121	107
1923 ..	123	124	105	100	104	113	118	131	132	132	127	120	113
1924 ..	122	122	109	94	100	110	111	130	134	132	127	119	109
1925 ..	123	124	104	100	104	106	115	131	135	135	129	121	108
1926 ..	123	124	109	100	104	107	112	133	135	134	129	123	111
1927 ..	123	125	109	107	104	110	112	135	137	134	129	120	108
1928 ..	125	126	109	113	108	103	112	130	138	136	130	123	110
1929 ..	122	122	113	100	108	110	111	139	143	134	126	117	103
1930 ..	127	128	110	104	109	112	111	133	144	139	133	121	103
1931 ..	126	128	115	100	108	114	106	129	140	135	132	121	111
1932 ..	125	125	116	108	114	114	110	123	135	137	134	123	110

Infant Mortality.

Of the 484,129 deaths registered during the year, 39,933, or 8·2 per cent., were those of infants under one year of age.

The rate of infant mortality resulting from these deaths is 65 per 1,000 live births; this rate is 1 per 1,000 below that of the previous year but 5 per 1,000 above the rate recorded in 1930.

The rates in the four quarters of the year were 88, 59, 50 and 65 respectively, being lower in the March and December quarters and higher in the September quarter than in 1931.

Table III traces the changes in the quarterly incidence of infantile mortality during the last 62 years, and shows, in conjunction with Table I, that until 1901–05, and again, but to a very slight degree, in 1911–15, while the coldest months of the year yielded the highest general death-rate, the hot summer months levied the highest toll on infant life.

Since the beginning of the present century, this experience has undergone a remarkable change. In all four quarters, the infant death-rate has fallen in each successive quinquennium, but with great inequality. Comparing 1932 with 1896–1900, the fall ranges from 38 per cent. in the March quarter, 52 in the June, and 56 in the December, to 76 per cent. in the September quarter. This

precipitate decline, due in a large measure to the fall in the mortality from epidemic diarrhœa, has so reduced the mortality in the third quarter that it now yields the lowest quarterly rate, while the March quarter yields the highest.

Table III.—Average Rate of Infantile Mortality by Quarters in Quinquennia, 1871–1930, and in 1931 and 1932.

	Yearly Average.	Quarterly Averages.			
		March.	June.	September.	December.
1871–75	153	151	133	180	149
1876–80	145	147	128	161	143
1881–85	139	140	125	152	139
1886–90	145	146	125	163	147
1891–95	151	151	132	169	151
1896–1900	156	142	124	212	148
1901–05	138	137	113	162	140
1906–10	117	124	98	120	128
1911–15	110	119	91	120	109
1916–20	90	116	83	75	91
1921–25	76	94	70	62	77
1926–30	68	91	60	52	69
1931	66	94	59	46	67
1932	65	88	59	50	65

The changes in the infant mortality rate from all causes and from diarrhœal diseases since 1861–65 are shown in Table IV. The diarrhœal rate for 1932 is above that of the two preceding years

Table IV.—Infant Mortality, distinguishing Mortality from Diarrhœal Diseases, 1861–1932.

Deaths under 1 year of age per 1,000 Live Births.

Year.	Diarrhœal Diseases.	Other Causes.	All Causes.	Year.	Diarrhœal Diseases.	Other Causes.	All Causes.
1861–65	15	136	151	1921	14	69	83
1866–70	20	137	157	1922	6	71	77
1871–75	19	134	153	1923	7	62	69
1876–80	16	129	145	1924	6	69	75
1881–85	14	125	139	1925	7	68	75
1886–90	17	128	145				
1891–95	20	131	151	1926	8	62	70
1896–00	31	125	156	1927	6	64	70
1901–05	23	115	138	1928	6	59	65
1906–10	18	99	117	1929	7	67	74
1911–15	19	91	110	1930	5	55	60
1916–20	9	81	90				
1921–25	8	68	76	1931	5	61	66
1926–30	6	62	68	1932	6	59	65

when the September quarter was cooler, but below that in 1929 with its warmer summer.

Table V shows that the fall during the five quinquennia for which detailed age distinction is now available was continuous at every

Table V.—Age Distribution of Infant Mortality, 1881–1932.

Rates per 1,000 (Live) Births.

Year.	Days.		Weeks.				Months.					Total under one year.
	0–1	1–7	0–1	1–2	2–3	3–4	Total under four weeks	Four weeks to 3 m'nths	3–6	6–9	9–12	
1881–1885 ..	—	—	—	—	—	—	67		28	44		139
1886–1890 ..	—	—	—	—	—	—	69		30	46		145
1891–1895 ..	—	—	—	—	—	—	74		31	46		151
1896–1900 ..	—	—	—	—	—	—	74		34	48		156
1901–1905 ..	—	—	—	—	—	—	70		28	40		138
1906–1910 ..	11·5	13·0	24·5	5·8	5·7	4·2	40·2	22·8	22·0	17·3	14·8	117·1
1911–1915 ..	11·4	12·7	24·1	5·7	5·3	3·9	39·0	20·2	19·6	15·9	14·1	108·7
1916–1920 ..	11·0	12·4	23·4	5·6	4·7	3·4	37·0	16·5	14·6	12·0	10·8	90·9
1921–1925 ..	10·4	11·3	21·7	5·0	3·9	2·8	33·4	12·8	11·3	9·2	8·3	74·9
1926–1930 ..	10·3	11·5	21·8	4·3	3·2	2·4	31·8	10·9	9·6	8·1	7·5	67·9
1906 ..	11·8	13·2	25·0	6·1	6·2	4·6	41·9	25·7	27·0	20·7	17·2	132·5
1907 ..	11·3	13·1	24·4	6·0	5·9	4·5	40·7	23·3	21·3	17·3	15·1	117·6
1908 ..	11·5	12·8	24·3	5·9	5·8	4·3	40·3	24·2	23 6	17·7	14·6	120·4
1909 ..	11·6	13·2	24·7	5·7	5·3	4·0	39·8	20·4	19·2	15·6	13·8	108·7
1910 ..	11·5	12·5	24·1	5·4	5·1	3·8	38·5	20·0	18·8	15·0	13·2	105·4
1911 ..	11·6	12·7	24·3	6·0	6·0	4·5	40·6	24·7	25·9	20·6	17·4	129·2
1912 ..	11·3	12·9	24·2	5·6	5·0	3·7	38·4	17·7	14·9	12·5	11·4	94·7
1913 ..	11·8	12·7	24·5	5·8	5·4	3·9	39·5	20·3	19·8	15·7	13·6	108·9
1914 ..	11·4	12·7	24·1	5·5	5·0	3·9	38·5	19·3	18·7	15·0	13·0	104·4
1915 ..	10·9	12·5	23·4	5·7	5·0	3·7	37·7	18·6	18·2	16·0	15·2	105·8
1916 ..	10·9	12·3	23·2	5·6	4·9	3·4	36·9	16·9	15·2	11·7	10·3	91·1
1917 ..	11·0	12·4	23·4	5·6	4·8	3·4	37·1	16·9	15·0	11·6	10·6	91·1
1918 ..	11·1	12·1	23·2	5·5	4·6	3·4	36·6	17·1	16·1	14·4	13·7	97·9
1919 ..	12·2	13·7	25·9	6·1	4·9	3·6	40·4	16·4	14·4	11·8	10·3	93·2
1920 ..	10·4	11·5	21·9	5·3	4·6	3·3	35·0	15·5	13·0	11·0	10·0	84·5
1921 ..	10·8	11·6	22·4	5·4	4·5	3·0	35·2	14·7	13·7	9·7	7·8	81·2
1922 ..	10·4	11·6	22·0	5·2	4·1	2·8	33·9	12·4	10·6	9·2	8·6	74·7
1923 ..	10·2	10·9	21·1	4·6	3·6	2·6	31·9	11·4	10·0	8·3	7·6	69·2
1924 ..	10·6	11·2	21·8	4·8	3·8	2·6	33·0	12·4	10·8	9·3	8·8	74·2
1925 ..	10·1	11·1	21·2	4·7	3·7	2·7	32·3	12·5	11·2	9·4	9·0	74·5
1926 ..	10·0	11·3	21·3	4·6	3·6	2·5	31·9	11·6	10·4	8·6	7·7	70·2
1927 ..	10·6	11·6	22·2	4·3	3·4	2·5	32·3	10·7	9·7	8·7	8·2	69·7
1928 ..	10·4	11·2	21·6	4·1	3·0	2·4	31·1	10·7	9·2	7·4	6·8	65·1
1929 ..	10·4	11·9	22·3	4·6	3·3	2·6	32·8	11·6	10·7	9·9	9·4	74·4
1930 ..	10·4	11·6	22·0	3·8	2·9	2·2	30·9	9·6	7·8	6·1	5·5	60·0
1931 ..	10·4	11·7	22·1	4·0	3·1	2·4	31·6	10·9	9·3	7·8	6·8	66·4
1932 ..	10·6	11·8	22·4	3·8	3·0	2·4	31·6	10·8	9·1	7·2	6·3	65·0

Rates per 1,000 of those for 1906–10.

1906–1910 ..	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1911–1915 ..	991	977	984	983	930	929	970	886	891	919	953	928
1916–1920 ..	957	954	955	966	825	810	920	724	664	694	730	776
1921–1925 ..	904	869	886	862	684	667	831	561	514	532	561	640
1926–1930 ..	896	885	890	741	561	571	791	478	436	468	507	580
1926 ..	870	869	869	793	632	595	794	509	473	497	520	599
1927 ..	922	892	906	741	596	595	803	469	441	503	554	595
1928 ..	904	862	882	707	526	571	774	469	418	428	459	556
1929 ..	904	915	910	793	579	619	816	509	486	572	635	635
1930 ..	904	892	898	655	509	524	769	421	355	353	372	512
1931 ..	904	900	902	690	544	571	786	478	423	451	459	567
1932 ..	922	908	914	655	526	571	786	474	414	416	426	555

age-group except 1–7 days, at which age the rate in 1926–30 was slightly in excess of that for the preceding five years. During the first month of life the fall was 21 per cent., but at the later age-groups the average fall was slightly over 50 per cent., reaching a maximum of 56 per cent. at 3–6 months. At ages from 3 to 12 months the fall continued in 1932, with improvement on the 1926–30 rates amounting to 5 per cent. at 3–6 months, 11 at 6–9 months and 16 at 9–12 months. In the first week of life the recent tendency for the rate to increase was continued in 1932, and in seeking a cause for this the increasing proportion of primiparous births to all births should be borne in mind.

Distribution of Infant Mortality.—Table VI shows how infant mortality was distributed in 1932 between the sexes and throughout the country.

For convenience in the interpretation of this and similar tables where the regional subdivision is employed, the counties comprising each region are given below.*

The rates for the aggregates of different classes of area are, as usual, highest for the county boroughs and lowest for rural districts, London occupying an intermediate position together with the smaller towns. In London's outer ring, which comprises almost as great a population as London itself, infant mortality was lower than in the aggregate of all the rural districts outside Greater London, and was 14 per 1,000 live births less than in the Administrative County. The only regions showing a lower rate than this were South-East England outside Greater London and the South West.

It has been noticed almost invariably since 1911 that the Northern county boroughs have had the highest and the rural districts of the South the lowest infant mortality rate, and it was pointed out in Table XXI of the Review for 1931 (Text, p. 27) that when the twelve regional aggregates in use prior to 1931, apart from London,

* *Regional Summary.*—The country has been re-divided into regions, after consultation with other Government Departments, with a view to securing greater homogeneity in the character of the sectional populations than was provided by the old grouping into North, Midlands, South (including London) and Wales.

The counties in the various regions are as follows :—

South East.	*North* I.	*Midland* I.	*East.*	*Wales* I.
Bedfordshire.	Durham.	Gloucestershire.	Cambridgeshire.	Brecknockshire.
Berkshire.	Northumberland.	Herefordshire.	Ely, Isle of.	Carmarthenshire.
Buckinghamshire.		Shropshire.	Huntingdonshire.	Glamorganshire.
Essex.	*North* II.	Staffordshire.	Lincolnshire—	Monmouthshire.
Hertfordshire.	Cumberland.	Warwickshire.	Parts of Holland.	
Kent.	Westmorland.	Worcestershire.	„ Kesteven.	*Wales* II.
London.	Yorkshire.		„ Lindsey.	Anglesey.
Middlesex.	East Riding.	*Midland* II.	Norfolk.	Caernarvonshire.
Oxfordshire.	North Riding.	Derbyshire.	Rutlandshire.	Cardiganshire.
Southampton.		Leicestershire.	Suffolk, East.	Denbighshire.
Surrey.	*North* III.	Northamptonshire.	„ West.	Flintshire.
Sussex, East.	Yorkshire,	Nottinghamshire.		Merionethshire.
„ West.	West Riding.	Peterborough,	*South West.*	Montgomeryshire.
Wight, Isle of.	York C.B.	Soke of.	Cornwall.	Pembrokeshire.
			Devonshire.	Radnorshire.
	North IV.		Dorsetshire.	
	Cheshire.		Somersetshire.	
	Lancashire.		Wiltshire.	

For the constitution of Greater London, *see* pp. 63–65 of the Preliminary Report on the Census of England and Wales, 1931

were arranged in order of the mean number of persons per room in 1931, the rates for 1926–30 almost followed the same order.

Table VI.—Distribution of Infant Mortality, 1932.

	Deaths per 1,000 (Live) Births.			Mortality per cent. of that in England and Wales.		Deaths per 1,000 (Live) Births.			Mortality per cent. of that in England and Wales.
	Males.	Females.	Both Sexes.	Both Sexes.		Males.	Females.	Both Sexes.	Both Sexes.
England and Wales	73·4	56·3	65·0	100					
South-east ..	63·0	48·0	55·7	86	East	59·8	46·7	53·4	82
Greater London	67·4	51·3	59·6	92	South-west	58·1	44·3	51·4	79
Remainder of South-east ..	56·0	42·8	49·5	76	Wales	76·4	61·6	69·2	106
North	86·1	65·8	76·2	117	Wales I	78·0	64·1	71·3	110
North I ..	88·8	70·1	79·7	123	„ II	71·6	53·8	63·0	97
„ II ..	79·3	60·7	70·2	108	County Boroughs* ..	84·5	64·1	74·6	115
„ III ..	83·1	63·9	73·7	113	Other Urban Districts*	70·3	54·6	62·7	96
„ IV ..	88·1	66·1	77·4	119	Rural Districts* ..	65·0	50·3	57·9	89
Midland	74·2	56·8	65·7	101	Greater London { Admin. Co.	74·3	58·4	66·6	102
Midland I ..	75·2	56·7	66·2	102	Greater London { Outer Ring	60·0	43·8	52·1	80
„ II ..	72·2	56·8	64·7	100					

* Excluding Greater London.

Table VII shows the result of grouping the separate county aggregates of rural and of urban districts, and the individual county boroughs and Metropolitan boroughs, according to the mean number of persons per room at the 1931 census and obtaining the infant mortality rate for the triennium 1930–32 in each group.

In London the association with crowding as measured in this way is not very evident except for the Metropolitan boroughs having mean densities exceeding 1·3 per room, but for the other areas of England and Wales there is a regular increase in the infant mortality rate as the average density per room rises. It must be remembered, however, that the mean density per room tends to increase from South to North, as indicated in Table VIII where the county boroughs have been grouped according to the zones of latitude in which they are situated and also according to the percentage of the populations in private families who were living more than two per room in 1931.

The rates progressively increase as the measure of overcrowding rises within each latitude zone. A low average density of occupation of houses as measured by the number of rooms and persons, with all that is implied by that in social well-being, is clearly conducive to a low infant mortality rate, and vice versâ. At the same time this can account only in part for the northward increase, since in passing from the south coast zone to the industrial north (between 53° N and 55° N) the rates rise within each group of towns whether characterised by a high or low percentage of overcrowding. It must be presumed therefore that northerliness is a factor of importance in its effect on infant mortality apart from housing density.

The lower part of Table VIII shows that when mortality during the first year of life attributed to congenital causes (Nos. 157–161

of the International List) is separately analysed, there is within each latitude zone very little relation with the overcrowding rate, but there remains a definite increase from South to North. Mortality from causes other than congenital, however, not only increases from South to North in towns with similar crowding rate, but also increases with the crowding rate at each latitude. It is shown later (Table XXVII) that death-rates from bronchitis and pneumonia, and also

Table VII.—Infant Mortality in 1930–32 when County aggregates, and County and Metropolitan boroughs, are grouped according to Mean Density of persons per room in 1931.

	Mean Persons per Room (Private Families).							
	·55–	·70–	·85–	1·00–	1·15–	1·30–	1·45–	All Densities.
	Rates per 1,000 Live Births.							
London Admin. County ..	—	61·5	61·2	63·8	62·8	72·0	72·8	63·4
County Boroughs	57·6	61·1	77·5	80·4	92·7	—	—	72·6
Other Urban Districts ..	48·9	55·3	70·7	77·7	—	—	—	59·3
Rural Districts	48·6	54·1	70·9	—	78·3	—	—	56·1
	Rates per cent. of that in England and Wales.							
London Admin. County ..	—	96	96	100	99	113	114	99
County Boroughs	90	96	122	126	145	—	—	114
Other Urban Districts ..	77	87	111	122	—	—	—	93
Rural Districts	76	85	111	—	123	—	—	88

from whooping cough, at ages under 5, manifest a high association with latitude within groups of towns of similar housing density, whereas mortality in general at ages over 5 manifests no important association with latitude when the effect of differences in housing is thus eliminated. When it is recalled that many infant deaths from " congenital causes " (No. 31 in the short list), which include premature birth and injury at birth, are probably the result of early rickets in the mother, or of disorders arising from deficiencies of vitamin D during pregnancy, and that more than half the infant deaths from other than congenital causes are attributed to measles, whooping cough, bronchitis and pneumonia, which are so often the terminal affections of the rachitic child, it seems not unlikely that the northward increase in infant mortality, in so far as it is not explained by the social factors, mainly depends upon the decreasing amount of effective solar radiation which the populations receive.

In the upper part of Table IX the six meteorological districts have been arranged in descending order of the mean duration of sunshine recorded at those stations in the area which provided a record in all the 3 years 1930 to 1932. The order is the same if the standard values of 1881–1915 (Table 30) are used, these being based, however, upon a smaller number of stations. The mean air

temperatures, obtained from the values recorded each year in Table 30, are also given for these districts in the same periods. The order is not the same as for sunshine, the warmest district being the South West and the coldest the North East. The difference in recorded sunshine between the highest and lowest amounted to·82

Table VIII.—Infant Mortality, 1930–32, in the County boroughs grouped according to their Latitude and proportions of their populations living in overcrowded conditions in 1931.

Grouping by per cent. of population living at density of more than 2 per Room.	Degrees of North Latitude.						
	50°–	51°–	52°–	53°–	54°–	55°–	All.
Infant Mortality (all Causes) per 1,000 Live Births.							
0–	50·0	45·4	60·0	68·0	—	—	57·1
3–	54·0	57·9	67·1	69·5	—	—	62·5
6–	—	67·0	66·8	75·7	71·7	—	72·3
9–	62·3	—	79·0	87·7	73·1	—	84·5
12–	—	—	82·6	84·2	88·2	—	85·1
15 and over	—	65·7	—	85·6	87·4	71·4	81·6
All County Boroughs ..	55·2	60·0	66·8	79·2	85·4	71·4	72·6
Infant Mortality (Congenital Causes) per 1,000 Live Births.							
0–	30·7	26·6	29·3	39·6	—	—	30·6
3–	27·3	29·9	34·6	34·6	—	—	31·9
6–	—	30·4	32·3	34·4	33·5	—	33·4
9–	30·2	—	33·1	34·9	37·3	—	34·6
12–	—	—	33·3	36·8	41·8	—	38·0
15 and over	—	26·5	—	41·0	33·8	29·8	33·1
All County Boroughs ..	28·3	29·3	32·7	35·0	35·8	29·8	33·2
Infant Mortality (other Causes) per 1,000 Live Births.							
0–	19·3	18·8	30·7	28·4	—	—	26·5
3–	26·7	28·0	32·5	34·9	—	—	30·6
6–	—	36·6	34·5	41·3	38·2	—	38·9
9–	32·1	—	45·9	52·8	35·8	—	49·9
12–	—	—	49·3	47·4	46·4	—	47·1
15 and over	—	39·2	—	44·6	53·6	41·6	48·5
All County Boroughs ..	26·9	30·7	34·1	44·2	49·6	41·6	39·4
Mean No. of Persons per Room (Private Families).							
All County Boroughs ..	·78	·84	·80	·88	1·09	1·08	·86

hours per day, or about 300 hours in the year, whereas the difference in mean temperature was 2·3° F. in 1930–32 (1·9° F. for the March quarters).

The rates of infant mortality for 1931–32 in the upper part of Table IX have been obtained by aggregating the counties included in each Meteorological district, and for the first 5 districts the rates for congenital causes (which are not much disturbed by differences in housing density) follow the inverse order of sunshine exactly, the Midland district alone having a rate out of keeping with that order. With temperature there is less correspondence, the great mortality advantage of South-East over South-West for congenital causes not being associated with any temperature difference. The bronchitis and pneumonia rates, being closely associated also with the differences in overcrowding between the districts, do not follow either meteorological sequence very closely, but the agreement is as good with sunshine as with temperature.

In the lower part of the table the 6 geographical regions employed for health and registration purposes are arranged in ascending order of the annual hours of sunshine recorded at stations within their boundaries during 1930–32, and it is seen that the range is from 1,226 hours in the North to 1,501 in the South-East. This does not measure the full deprivation of solar radiation to which the northern populations are subjected. The deficiency of sunshine in the northern industrial towns arises not only from their latitude but also from

Table IX.—Infant Mortality, 1931 and 1932, and Sunshine and Temperature Values for Regions of England and Wales.

Meteorological District.	Mean Daily Hours of Sunshine.		Mean Air Temperature.		Infant Mortality per 1,000 Live Births in 1931–32.			
	1881–1915.	1930–32.	1881–1915.	1930–32.	Congenital Causes.	Bronchitis and Pneumonia.	Other Causes.	All Causes.
S.E. (No. 5) ..	4·49	4·13	49·5	49·9	26·8	10·7	17·8	55·3
E. (No. 3) ..	4·32	3·83	48·4	49·2	28·5	9·2	15·0	52·7
S.W. (No. 8) ..	4·28	3·68	49·5	50·0	34·0	12·9	17·9	64·8
N.E. (No. 2) ..	3·93	3·59	47·3	47·7	35·7	19·0	23·1	77·8
N.W. (No. 7) ..	3·89	3·54	48·2	48·6	36·4	17·9	23·1	77·4
Mid. (No. 4) ..	3·82	3·31	47·9	48·3	33·8	14·7	19·1	67·6

Geographical Region.	Mean Annual Hours of Sunshine, 1930–32.	Mean Infant Mortality Rates per 1,000 Live Births in 1931 and 1932.			
		Premature Birth and Injury at Birth.	Congenital Malformations and Debility.	Diarrhœa and Enteritis.	All Causes.
North	1,226	22·9	9·8	6·4	77·9
Midland	1,231	22·3	8·8	5·5	66·2
Wales	1,363	22·1	10·5	4·4	71·7
East	1,447	18·9	9·2	2·2	54·6
South-West	1,489	18·8	9·5	2·3	52·2
South-East	1,501	16·8	7·4	5·9	54·7

excessive smoke. Thus the mean annual sunshine recorded in 1930–32 at 9 industrial county boroughs in the North region was only 1,100 hours, compared with 1,273 hours at the remaining 24 stations in that region.

Using the values as they stand in Table IX, the mean infant mortality rates in 1931 and 1932 attributed to premature birth and injury at birth follow the inverse order of sunshine values in the 6 regions, whilst for congenital malformations and debility, and for diarrhœa and enteritis, the association is not so clear. These facts are not inconsistent with the suggestion that a cumulative deficiency of sunshine, or of its most essential constituents for the prevention of rickets in its obvious or obscure manifestations, is of greater importance than a greater coldness in producing the regional differences of infantile and juvenile mortality in England and Wales, in so far as these are due to climate at all.

Table VI shows that in 1932 North I gave the highest rate of 79·7 per 1,000 live births, this rate being 123 per cent. of the rate in England and Wales. North IV followed with 119 per cent., North III with 113, Wales I with 110, and North II with 108. The Greater London rate was 92 per cent. of that in England and Wales, that of the Eastern Counties 82, of the South-West 79, and of the South-Eastern region (excluding Greater London) 76.

Compared with the preceding year North I and II and the Welsh regions showed substantially lower rates, whereas in the South-East mortality was slightly higher save in London's outer ring.

The extent of the recent fall in infant mortality has been fairly uniform in different classes of area and parts of the country. Thus the fall in 1932 below the 1916–20 standard was 26 per cent. in London Administrative County, 28 per cent. in the North, 27 per cent. in the rest of England and 24 per cent. in Wales. Adhering to the density classification hitherto used, it is seen from Table X that the fall from 1911–15 to 1926–30 amounted to 41 per cent. in London, 37 per cent. in the county boroughs, 40 per cent. in the small towns and 34 per cent. in the rural districts. The 1932 rates showed a further improvement on 1926–30 rates amounting to 5 per cent. in the county boroughs, 6 per cent. in the small towns and 3 per cent. in the rural districts, Greater London being excluded in each case.

Distribution of the Fall in Mortality of Various Stages of Infancy.—The reduction of mortality at various stages of infancy in different classes of area is outlined for the period covered by this form of tabulation in Table X.

In this table the comparison with 1911–15 is shown up to 1926–30 on the basis of the division previously used, that is to say the aggregates referred to, other than the Administrative County of London, include in each instance some districts comprising London's outer ring, but from 1926–30 onwards the new density summary is used. It was pointed out in the Review for 1931 (p. 10) that the effect of the change on infant mortality rates is only of importance

Table X.—Infant Mortality at Various Stages of Infancy in different Classes of Area compared with that in 1911–15 and 1926–30.

	Under 4 Weeks.				4 Weeks to 3 Months.				3–6 Months.			
Mortality (per 1,000 Live Births) compared with 1911–15 taken as 1,000.												
	London Admin. County.	County Boroughs.	Other Urban Districts.	Rural Districts.	London Admin. County.	County Boroughs.	Other Urban Districts.	Rural Districts.	London Admin. County.	County Boroughs.	Other Urban Districts.	Rural Districts.
1911–15	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1916–20	949	943	940	971	834	810	790	834	793	739	691	726
1921–25	800	855	862	871	574	640	627	672	605	604	550	577
1926–30	728	812	823	841	505	548	507	582	539	516	430	480
Mortality (per 1,000 Live Births) compared with 1926–30 taken as 1,000.												
	Greater London.	Outside Greater London.			Greater London.	Outside Greater London.			Greater London.	Outside Greater London.		
		County Boroughs.	Other Urban Districts.	Rural Districts.		County Boroughs.	Other Urban Districts.	Rural Districts.		County Boroughs.	Other Urban Districts.	Rural Districts.
1926–30	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1926	1,002	1,013	1,003	978	1,029	1,079	1,083	1,069	1,044	1,080	1,129	1,089
1927	993	1,018	1,032	1,005	889	976	1,025	1,070	931	1,004	1,087	1,050
1928	994	985	967	965	1,068	978	966	928	1,059	971	888	934
1929	1,041	1,020	1,027	1,060	1,091	1,041	1,070	1,088	1,094	1,117	1,134	1,115
1930	969	964	971	995	922	921	852	837	870	825	754	805
1931	1,017	981	989	1,010	1,075	993	1,003	937	1,037	980	946	910
1932	1,028	988	990	984	1,025	1,011	963	1,004	1,017	930	925	983

	6–9 Months.				9–12 Months.				Total under 1 Year.			
Mortality (per 1,000 Live Births) compared with 1911–15 taken as 1,000.												
	London Admin. County.	County Boroughs.	Other Urban Districts.	Rural Districts.	London Admin. County.	County Boroughs.	Other Urban Districts.	Rural Districts.	London Admin. County.	County Boroughs.	Other Urban Districts.	Rural Districts.
1911–15	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1916–20	735	729	685	739	738	732	701	736	833	818	800	851
1921–25	578	604	568	583	592	643	573	602	655	700	683	721
1926–30	546	517	463	506	529	550	478	535	592	626	598	659
Mortality (per 1,000 Live Births) compared with 1926–30 taken as 1,000.												
	Greater London.	Outside Greater London.			Greater London.	Outside Greater London.			Greater London.	Outside Greater London.		
		County Boroughs.	Other Urban Districts.	Rural Districts.		County Boroughs.	Other Urban Districts.	Rural Districts.		County Boroughs.	Other Urban Districts.	Rural Districts.
1926–30	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1926	950	1,096	1,087	1,073	1,004	1,038	1,037	1,000	1,007	1,047	1,045	1,017
1927	954	1,059	1,110	1,154	921	1,094	1,172	1,188	952	1,024	1,062	1,052
1928	1,040	883	880	851	1,039	885	836	874	1,028	956	933	936
1929	1,213	1,254	1,185	1,186	1,209	1,280	1,241	1,182	1,100	1,100	1,088	1,094
1930	849	707	736	729	830	703	714	756	913	871	872	900
1931	902	992	917	973	817	936	925	908	991	978	971	974
1932	915	897	824	925	937	791	795	910	1,060	947	938	974

for the " other urban districts," the new aggregate having rates higher than the old, in 1931, by 5 per cent. for the first 4 weeks of life, 3 per cent. at 1–6 months, 8 per cent. at 6–9 months, 7 per cent. at 9–12 months and 5 per cent. for the first year as a whole. This effect, however, is eliminated in Table X by the change of datum line at 1926–30.

In Greater London 1932 rates show improvement over 1926–30 only at ages over 6 months. In the towns and rural districts the degree of recent improvement progressively increases from 3 months onwards, and is greater in the former than the latter.

Table XI compares the extent of decline since 1916–20 at different stages of infancy in the North and in Wales with that in the rest of England, excluding London Administrative County.

Table XI.—Infant Mortality (per 1,000 Live Births) at Various Stages of Infancy in Different Regions of England and Wales, per 1,000 of that in 1916–20.

	Under 4 Weeks.				4 Weeks to 3 Months.				3–6 Months.			
	England and Wales.	North.	Rest of* England.	Wales.	England and Wales	North.	Rest of* England.	Wales.	England and Wales.	North.	Rest of* England.	Wales.
1911–15	1,053	1,032	1,074	1,051	1,232	1,194	1,262	1,310	1,370	1,322	1,425	1,540
1916–20	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1921–25	902	915	898	928	782	813	771	826	799	812	789	850
1926–30	859	871	855	952	660	687	650	699	665	673	657	695
1931	853	854	854	971	660	696	632	709	647	672	621	642
1932	853	853	858	953	660	704	633	644	634	642	620	624

	6–9 Months.				9–12 Months.				Total under 1 Year.			
	England and Wales.	North.	Rest of* England.	Wales.	England and Wales.	North.	Rest of* England.	Wales.	England and Wales.	North.	Rest of* England.	Wales.
1911–15	1,392	—	—	—	1,380	—	—	—	1,218	1,187	1,242	1,273
1916–20	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1921–25	818	834	798	862	842	876	798	909	846	864	836	886
1926–30	698	691	700	719	721	737	716	710	755	764	755	808
1931	666	691	633	696	655	711	613	779	738	756	727	814
1932	619	596	635	600	602	581	613	596	723	723	729	759

* Excluding London Administrative County.

Mortality during the first 4 weeks has fallen to the same extent in the North as in the rest of England, by 15 per cent., but in Wales the improvement up to 1921–25, has not been maintained in more recent years. At all later stages of infancy Wales showed a remarkable fall in mortality in 1932, bringing the extent of improvement since 1916–20 to a relatively higher level than for England and Wales as a whole. There was also a considerable fall at ages 6–12 months in the North of England.

Table XII.—Infant Mortality at Various Ages, 1932.

Rates per 1,000 Live Births.

	Total under one Year.	Under 30 Minutes.	30 Minutes and under 1 Day.	Total under 1 Day.	Days. 1	2	3	4	5	6	1 Day and under 1 Week.	Weeks. 0	1	2	3	Total under 4 Weeks.	4 Weeks to 3 Months.	Months. 3–6	6–9	9–12
England and Wales.																				
All Infants .. M.	73·4	1·9	10·0	11·9	4·1	3·8	2·6	1·6	1·1	0·8	13·9	25·8	4·2	3·2	2·8	36·0	12·4	10·2	7·9	6·9
F.	56·3	1·6	7·7	9·3	2·8	2·4	1·8	1·1	0·8	0·7	9·6	18·9	3·4	2·7	2·0	27·0	9·2	8·0	6·5	5·6
P.	65·0	1·8	8·9	10·6	3·5	3·1	2·2	1·3	1·0	0·7	11·8	22·4	3·8	3·0	2·4	31·6	10·8	9·1	7·2	6·3
Legitimate .. M.	70·9	1·5	9·7	11·2	4·0	3·7	2·6	1·5	1·1	0·7	13·6	24·8	4·0	3·1	2·7	34·6	11·8	9·9	7·8	6·8
F.	54·4	1·2	7·5	8·7	2·7	2·3	1·8	1·1	0·8	0·6	9·3	18·0	3·4	2·6	1·9	25·9	8·9	7·7	6·3	5·5
P.	62·9	1·4	8·6	10·0	3·4	3·0	2·2	1·3	0·9	0·7	11·5	21·5	3·7	2·9	2·3	30·4	10·4	8·8	7·1	6·2
Illegitimate .. M.	127·2	9·9	16·3	26·3	6·4	5·8	3·8	2·5	1·5	0·8	20·9	47·2	7·0	5·5	4·9	64·6	25·2	17·9	9·2	10·3
F.	96·5	9·8	12·5	22·2	5·4	4·2	2·1	1·7	0·8	1·3	15·5	37·7	5·1	4·6	3·1	50·6	16·6	13·4	9·2	6·7
P.	112·2	9·8	14·4	24·3	5·9	5·0	3·0	2·1	1·1	1·0	18·3	42·5	6·1	5·1	4·0	57·7	21·0	15·7	9·2	8·6
South-East	55·7	1·7	7·6	9·3	2·8	2·5	1·8	1·1	0·7	0·5	9·5	18·8	3·1	2·4	2·0	26·2	9·0	8·4	6·4	5·7
Greater London ..	59·6	1·8	7·7	9·5	2·8	2·3	1·5	1·1	0·7	0·5	8·8	18·4	3·0	2·4	2·1	25·9	9·9	9·9	7·3	6·5
Remainder of South-East	49·5	1·6	7·5	9·1	2·7	2·9	2·2	1·2	0·8	0·6	10·5	19·5	3·1	2·2	1·8	26·7	7·7	5·9	4·9	4·4
North	76·2	1·8	9·7	11·5	3·9	3·7	2·5	1·5	1·0	0·9	13·5	25·0	4·4	3·5	2·9	35·7	13·2	11·0	8·7	7·5
North I	79·7	1·9	9·0	10·9	4·0	4·1	2·6	1·8	0·8	1·1	14·3	25·2	4·3	4·4	3·4	37·4	13·9	11·3	9·4	7·6
„ II	70·2	1·3	10·0	11·3	4·3	3·4	2·7	1·5	1·3	0·9	14·0	25·3	4·7	3·2	3·0	36·2	12·3	9·1	6·7	5·9
„ III	73·7	1·6	9·7	11·3	4·1	3·7	2·4	1·5	1·2	0·8	13·6	24·9	4·6	3·3	2·7	35·5	12·7	10·2	8·3	7·0
„ IV	77·4	1·9	10·0	11·9	3·7	3·7	2·4	1·4	1·0	0·8	12·9	24·8	4·2	3·2	2·8	34·9	13·5	11·8	9·0	8·2
Midland	65·7	1·9	9·2	11·0	3·9	3·1	2·4	1·4	0·9	0·8	12·4	23·5	4·0	3·0	2·5	33·0	10·6	8·6	7·4	6·2
Midland I	66·2	2·0	9·5	11·4	4·0	3·2	2·2	1·2	1·0	0·8	12·4	23·9	4·0	3·0	2·6	33·4	10·2	8·7	7·6	6·3
„ II	64·7	1·7	8·6	10·3	3·6	2·9	2·8	1·6	0·9	0·8	12·5	22·7	4·0	3·2	2·3	32·2	11·4	8·3	6·8	6·0
East	53·4	1·5	8·4	10·0	3·4	3·3	1·7	1·0	1·3	0·5	11·2	21·2	3·2	3·0	1·5	28·9	8·4	6·4	5·7	4·0
South-West	51·4	1·3	8·7	9·9	3·2	2·4	1·7	1·6	0·9	0·9	10·9	20·8	4·2	2·7	1·5	29·2	8·8	5·9	3·7	3·9
Wales	69·2	1·9	10·4	12·4	3·8	3·4	3·1	1·5	1·3	0·6	13·7	26·1	4·5	3·1	2·6	36·3	11·2	8·9	6·9	6·0
Wales I	71·3	1·8	10·6	12·4	3·7	3·6	3·2	1·7	1·4	0·7	14·3	26·7	4·7	3·0	2·8	37·2	11·5	9·1	7·5	5·9
„ II	63·0	2·3	9·9	12·3	4·1	2·9	2·7	1·0	1·2	0·3	12·2	24·4	3·8	3·3	1·9	33·5	10·0	8·4	5·0	6·2
County Boroughs* ..	74·6	1·8	9·7	11·4	3·6	3·4	2·4	1·4	1·0	0·8	12·6	24·0	4·0	3·2	2·7	33·9	13·0	11·1	9·0	7·6
Other Urban Districts* ..	62·7	1·8	8·9	10·7	3·8	3·2	2·6	1·5	1·1	0·8	12·9	23·5	4·0	3·1	2·4	33·0	10·0	7·9	6·3	5·5
Rural Districts*	57·9	1·6	8·7	10·3	3·6	3·2	2·1	1·4	1·1	0·7	12·0	22·3	4·0	3·0	2·0	31·3	9·4	6·9	5·5	4·9
Greater London Admin. County	66·6	2·2	7·7	9·9	2·5	2·1	1·5	1·1	0·7	0·6	8·6	18·5	2·8	2·0	1·9	25·1	11·6	12·4	9·1	8·2
Greater London Outer Ring ..	52·1	1·5	7·6	9·1	3·1	2·4	1·5	1·0	0·7	0·4	9·1	18·2	3·3	2·9	2·3	26·7	8·1	7·2	5·4	4·7

* Excluding Greater London.

Table XIII.—Infant Mortality at various Ages, in different parts of the Country, per cent. of that of all Infants of the same Age in England and Wales, 1932.

	Total under one Year.	Under 30 Minutes.	30 Minutes and under 1 Day.	Total under 1 Day.	Days.						1 Day and under 1 Week.	Weeks.				Total under 4 Weeks.	4 Weeks to 3 Months.	Months.		
					1	2	3	4	5	6		0	1	2	3			3–6	6–9	9–12
England and Wales P.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
England and Wales M.	113	106	112	112	117	123	118	123	110	114	118	115	111	107	117	114	115	112	110	110
England and Wales F.	87	89	87	88	80	77	82	85	80	100	81	84	89	90	83	85	85	88	90	89
South-East	86	94	85	88	80	81	82	85	70	71	81	84	82	80	83	83	83	92	89	90
Greater London	92	100	87	90	80	74	68	85	70	71	75	82	79	80	88	82	92	109	101	103
Remainder of South-East	76	89	84	86	77	94	100	92	80	86	89	87	82	73	75	84	71	65	68	70
North	117	100	109	108	111	119	114	115	100	129	114	112	116	117	121	113	122	121	121	119
North I	123	106	101	103	114	132	118	138	80	157	121	113	113	147	142	118	129	124	131	121
„ II	108	72	112	107	123	110	123	115	130	129	119	113	124	107	125	115	114	100	93	94
„ III	113	89	109	107	117	119	109	115	120	114	115	111	121	110	113	112	118	112	115	111
„ IV	119	106	112	112	106	119	109	108	100	114	109	111	111	107	117	110	125	130	125	130
Midland	101	106	103	104	111	100	109	108	90	114	105	105	105	100	104	104	98	95	103	98
Midland I	102	111	107	108	114	103	100	92	100	114	105	107	105	100	108	106	94	96	106	100
„ II	100	94	97	97	103	94	127	123	90	114	106	101	105	107	96	102	106	91	94	95
East	82	83	94	94	97	106	77	77	130	71	95	95	84	100	63	91	78	70	79	63
South-West	79	72	98	93	91	77	77	123	90	129	92	93	111	90	63	92	81	65	51	62
Wales	106	106	117	117	109	110	141	115	130	86	116	117	118	103	108	115	104	98	96	95
Wales I	110	100	119	117	106	116	145	131	140	100	121	119	124	100	117	118	106	100	104	94
„ II	97	128	111	116	117	94	123	77	120	43	103	109	100	110	79	106	93	92	69	98
County Boroughs*	115	100	109	108	103	110	109	108	100	114	107	107	105	107	113	107	120	122	125	121
Other Urban Districts*	96	100	100	101	109	103	118	115	110	114	109	105	105	103	100	104	93	87	88	87
Rural Districts*	89	89	98	97	103	103	95	108	110	100	102	100	105	100	83	99	87	76	76	78
Greater London Admin. County	102	122	87	93	71	68	68	85	70	86	73	83	74	67	79	79	107	136	126	130
Greater London Outer Ring	80	83	85	86	89	77	68	77	70	57	77	81	87	97	96	84	75	79	75	75

* Excluding Greater London.

The analysis of infant deaths by detail of age, initiated in 1905 with distinction of registration counties mainly urban and mainly rural in character, and expanded in 1917 and again in 1931, is given for each region and class of area in Table 13. Distinctions of sex and legitimacy are shown only for England and Wales as a whole, but are available for each of the populations dealt with. Some of the facts and rates applying to the illegitimate will be found in Table 14. The

Table XIV.—Mortality of the first 30 Minutes of Life 1932.

International List Numbers.	Cause of Death.	All Infants.	Under 30 Minutes.					
			Legitimate.			Illegitimate.		
			Males.	Females.	Both Sexes.	Males.	Females.	Both Sexes.
		Deaths.						
86	Convulsions	—	—	—	—	—	—	—
157	Congenital malformations	70	26	41	67	2	1	3
158	Congenital debility	55	32	21	53	1	1	2
159	Premature birth	421	233	154	387	16	18	34
160	Injury at birth	162	90	54	144	11	7	18
161 (*a*)	Atelectasis	109	56	45	101	3	5	8
161 (*b* & c)	Other diseases peculiar to early infancy	6	1	3	4	1	1	2
194 : 1	Lack of care	195	16	30	46	79	70	149
182	Accidental suffocation	1	—	1	1	—	—	—
172–175	Homicide	20	1	—	1	9	10	19
	Other forms of violence	20	—	—	—	7	13	20
	Violence and lack of care	*236*	*17*	*31*	*48*	*95*	*93*	*188*
	Other Causes	16	1	4	5	8	3	11
	All Causes	1,075	456	353	809	137	129	266
		Mortality per Million Live Births.						
86	Convulsions	—	—	—	—	—	—	—
157	Congenital malformations	114	86	143	114	145	76	111
158	Congenital debility	90	106	73	90	73	76	74
159	Premature birth	686	775	538	659	1,161	1,361	1,259
160	Injury at birth	264	299	189	245	798	529	666
161 (*a*)	Atelectasis	178	186	157	172	218	378	296
161 (*b* & *c*)	Other diseases peculiar to early infancy	10	3	10	7	73	76	74
194 : 1	Lack of care	318	53	105	78	5,733	5,291	5,516
182	Accidental suffocation	2	—	3	2	—	—	—
172–175	Homicide	33	3	—	2	653	756	703
	Other forms of violence	33	—	—	—	508	983	740
	Violence and lack of care	*384*	*57*	*108*	*82*	*6,894*	*7,029*	*6,960*
	Other causes	26	3	14	9	581	227	407
	All Causes	1,751	1,517	1,233	13,78	9,941	9,751	9,848
		Percentage of Total under 24 Hours.						
86	Convulsions	—	—	—	—	—	—	—
157	Congenital malformations	16	13	19	16	25	14	20
158	Congenital debility	19	22	17	19	14	17	15
159	Premature birth	10	10	9	10	9	14	11
160	Injury at birth	28	27	27	27	48	47	47
161 (*a*)	Atelectasis	20	20	20	20	15	33	23
161 (*b* & *c*)	Other diseases peculiar to early infancy	12	5	14	9	25	50	33
194 : 1	Lack of care	91	84	97	92	88	93	90
182	Accidental suffocation	5	—	13	7	—	—	—
172–175	Homicide	77	100	—	100	75	77	76
	Other forms of violence	83	—	—	—	88	87	87
	Violence and lack of care	*82*	*63*	*78*	*72*	*86*	*85*	*85*
	Other causes	30	5	22	13	89	50	73
	All Causes	16	14	14	14	38	44	41

rates per 1,000 live births appear in Table XII, and as percentages of the England and Wales rate in Table XIII.

The chance of dying within half an hour of birth ranged from 1·9 per 1,000 in the Midland region and Wales to 1·3 in the South-West. This measure is very dependent upon accuracy of certification which in turn may be correlated with the frequency of the presence of a medical attendant at the birth. When the mortality within the first day as a whole is examined, Wales gives, as in each year since 1927, the highest rate of any region, the sequence being then as usual from North to South. For the combined mortality from the second to the seventh day, this sequence is repeated, Wales showing 116 per cent. and Greater London only 75 per cent. of the rate for England and Wales. North I gives the highest rates from the 2nd week to the 3rd month and at 6–9 months, and North IV at 3–6 months and 9–12 months. The South-West gives the lowest rates at 6–12 months. The range of relative mortality does not increase so greatly as the first year advances as was the case in 1931, the regional range being 86–117 per cent. of that in England and Wales for the first day's mortality, increasing to 51–131 at 6–9 months.

Urban excess is not, as a rule, present from birth, but tends to increase throughout the later months of infancy. This is well shown in 1932 by contrasting London Administrative County with its outer ring of suburbs. In the 2nd, 3rd and 4th weeks the rate was actually higher in the outer ring, but at 4 weeks to 3 months the rate for the outer ring was only 70 per cent. of that for London itself, and at 3–12 months less than 60 per cent. Outside Greater London the rates during the first few weeks are little affected by urbanization, but the divergence between the county boroughs and rural districts rapidly increases to 46 per cent. of the rate for England and Wales at 3–6 months, and to 49 per cent. at 6–9 months.

The increasing divergence of mortality rates both by regions and population density as the first year of life advances probably results from increasing sensitiveness to external environment as the infant becomes less protected by maternal care.

Deaths occurring immediately after birth.—The separate tabulation of deaths registered as occurring within 30 minutes of birth according to sex, cause and legitimacy, first published in the Review for 1928, is repeated for 1932 in Table XIV.

The table shows that this very early mortality displays in 1932 the same startling differential incidence upon the illegitimate as in previous years, especially for those causes of death which imply, or are likely to mask violence or neglect. For violence and lack of care as a whole a rate of 6,960 per million for illegitimate infants compares with one of 82 for the legitimate; 82 per cent. of all such deaths under 24 hours occurred within this first half hour, as against 16 per cent. for mortality generally, so that the

risk represented by violence and lack of care is one applying especially to this first half-hour of life.

Of the 188 deaths of illegitimate infants assigned to these headings 125 or 66 per cent. relate to abandoned infants of unknown parentage.

Causes of Infant Mortality.—The causes of infant mortality are set forth in Tables 11–15, which compare the records of 1932 with those of previous years, and show the incidence of mortality from each cause upon infants distinguished by sex, age, legitimacy, class of area, and section of the country. From these tables has been prepared the comparison in Table XV between the mortality from the chief causes distinguished at various ages in 1932 and 1927–31, and from all causes in 1932 and 1931.

Table XV.—Comparison of Infant Mortality Rates (per 100,000 Live Births) in 1932 with those of immediately preceding years.

	Under 4 Weeks.	4 Weeks to 3 Months.	3–6 Months.	6–9 Months.	9–12 Months.	Under 1 Year.	Under 4 Weeks.	4 Weeks to 3 Months	3–6 Months.	6–9 Months.	9–12 Months.	Under 1 Year.
	Increase or Decrease from Various Causes as compared with 1927–31.						Percentage Increase or Decrease as compared with 1927–31.					
Measles (7)	—	− 1	—	− 2	− 11	− 15	—	−25	—	− 6	−15	−12
Whooping cough (9) ..	− 1	+ 5	− 2	− 2	− 7	− 5	−17	+12	− 4	− 3	−10	− 2
Influenza (11)	+ 1	+ 1	—	− 4	− 5	− 7	+17	+ 8	—	−20	−26	− 9
Tuberculosis, all forms (23–32)	− 1	− 2	+ 2	+ 1	− 3	− 3	*	−25	+ 8	+ 3	− 9	− 3
Convulsions (86)	−23	−12	−11	− 1	− 2	− 49	−18	−24	−32	− 5	−13	−20
Bronchitis and pneumonia (106–109)	+ 4	+ 6	−21	−74	− 75	−161	+ 3	+ 2	− 6	−21	−23	−11
Diarrhœa and enteritis (119)	− 2	− 1	—	+ 1	− 1	− 3	− 3	− 1	—	+ 1	− 1	− 1
Developmental and wasting diseases (157–159, 161 *a*, *b*)	− 7	+18	− 5	+ 3	—	+ 9	—	+ 5	− 4	+ 8	—	—
Congenital defects (malformations and atelectasis) (157, 161a)	*+45*	*+28*	*+ 5*	*+ 7*	*+ 2*	*+ 87*	*+ 9*	*+24*	*+11*	*+35*	*+18*	*+13*
Congenital debility and icterus (158, 161b) ..	*−59*	*−13*	*− 7*	*− 4*	*− 3*	*− 85*	*−22*	*−13*	*−14*	*−27*	*−43*	*−20*
Premature birth (159) ..	*+ 7*	*+ 3*	*− 4*	—	—	*+ 7*	—	*+ 2*	*−27*	—	—	—
Injury at birth (160) ..	+22	+ 1	+ 1	—	—	+ 24	+11	+33	*	*	*	+12
Suffocation—in bed or not stated how (182 part) ..	− 7	− 3	+ 3	+ 1	− 1	− 7	−28	−18	+30	+50	*	−12
Other causes..	− 3	+ 3	+12	+ 3	—	+ 13	− 1	+ 2	+ 9	+ 3	—	+ 2
All Causes	−16	+15	−22	−75	−106	−204	− 1	+ 1	− 2	− 9	−14	− 3
	Increase or Decrease of Mortality in 1932 as compared with 1931.						Increase or Decrease of Mortality in 1932 per cent. of that in 1931.					
All Causes	− 1	− 1	−19	−55	− 55	−131	—	—	− 2	− 7	− 8	− 2

Note.—The percentages in this Table being based on rates per 100,000 live births may differ on this account from those derivable from the rates in Table V.

* Numbers too small to provide significant comparison.

The decrease from the previous year is seen to have applied only to the later months of infancy, and in comparison with the average rates for the preceding five years, 1932 showed no appreciable change for the first 6 months of life. The increases due to congenital defects (0·87) and injury at birth (0·24) continue the tendency to rise which the mortality from these causes has exhibited

since 1923, their rate in 1932 again being the highest recorded in Table 12. Mortality from premature birth, which has since 1922 risen and fallen each year with the influenza rate, was slightly below that of 1931.

The most important decreases were for bronchitis and pneumonia (1·61), congenital debility (0·85) and convulsions (0·49). The mortality from the last two causes was the lowest recorded in the last 11 years, this being also true of diphtheria, syphilis, inflammation of the stomach, and icterus neonatorum of the causes distinguished in Table 12.

Excess Mortality of Male Infants.—In the Review for 1921 (p. 23, Diag. 2), it was pointed out that in the last sixty years of the nineteenth century while infant mortality was more or less constant, the relative excess in the mortality rate of male infants remained about 20–22 per cent., but during the period of fall in the present

Table XVI.—Male Infant Mortality per cent. of Female, by Age and Cause, in 1911–20, 1921–25 and each subsequent year. Also Male births per 100 Female births in the same year.

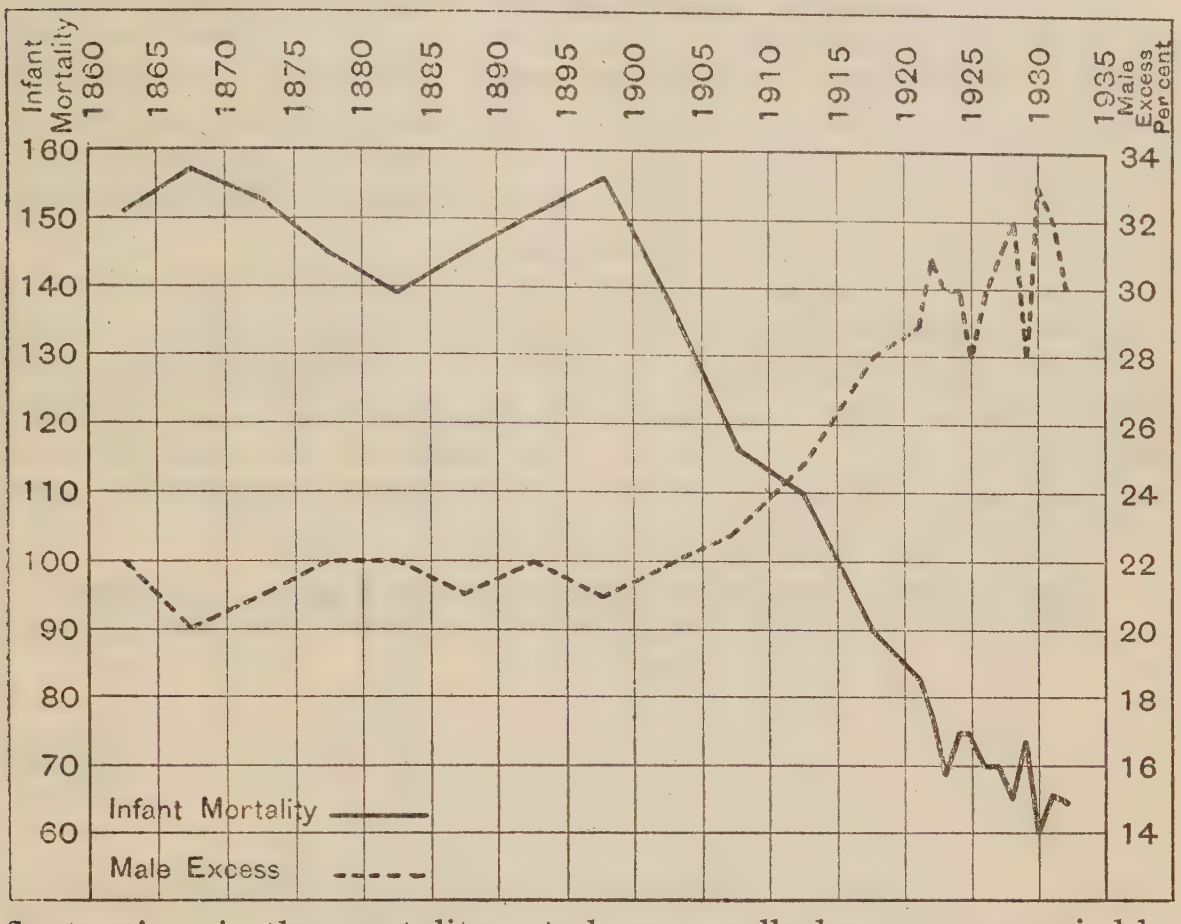
	1911–20.	1921–25.	1926.	1927.	1928.	1929.	1930.	1931.	1932.
Male Births per 100 Female—									
Live births—Legitimate	104	105	104	104	104	104	104	105	105
Illegitimate	104	104	103	105	104	102	105	106	104
All	104	105	104	104	104	104	104	105	105
Stillbirths	—	—	—	127†	121	126	124	125	122
Male Infant Deaths per 100 Female—									
Under 30 minutes	—	—	—	—	108	123	117	116	123
Under 1 day	134	134	136	135	133	135	134	133	134
Under 1 year	132	136	135	136	137	134	138	138	137
March quarter	136*	137	134	141	139	135	141	138	135
June „	133*	137	135	134	135	131	138	136	140
September „	131*	134	137	136	136	131	140	138	136
December „	132*	134	136	132	138	136	134	142	137
Male Rate (per 1,000 Live Births) per cent. of Female Rate—									
All causes—Under 1 day	129	128	130	129	127	130	129	127	128
1–7 days	131	133	130	130	135	132	136	136	145
1–4 weeks	131	130	128	131	130	129	134	130	126
4 weeks to 3 months	133	135	142	138	142	141	145	140	134
3–6 months	125	134	134	132	135	129	133	137	128
6–9 „	120	127	125	133	128	122	122	126	122
9–12 „	113	117	115	121	118	114	121	121	125
Under 1 year	126	130	130	131	132	128	133	132	130
Under 1 year. §Common infectious diseases	—	127	116	122	128	116	137	115	110
Tuberculous diseases	130*	128	136	126	130	123	122	126	133
Diarrhœa and enteritis	129*	139	135	139	145	139	144	146	136
Developmental and wasting diseases	—	127	130	129	130	127	131	130	130
Whooping cough	88*	93	86	91	92	78	85	86	87
Pneumonia and bronchitis	131*	131	133	136	132	133	132	131	130
Other diseases	—	137	138	135	138	140	140	141	143

* 1914–20. † Half year only. § Excluding Whooping Cough.

century the male excess had gradually increased to 28 per cent. in 1916–20. In the Review for 1928 (p. 23) a further increase of male excess to 30 per cent. in 1921–25 and 32 per cent. in 1928 was commented upon.

Diagram I depicts the history of the change in the ratio with the change in the rate itself from 1861–65 to 1932, and shows that the

Diagram 1.



fluctuations in the mortality rate have usually been accompanied by corresponding inverse changes in the ratio of male to female infant mortality. Table XVI indicates that since registration of stillbirths began in 1927 males have been in excess of females by 21 to 27 per cent.; for deaths of live born children occurring within the first half hour the male excess during the five years 1928–32 for which this information is available has averaged 17 per cent. For deaths occurring within 24 hours male excess has scarcely varied from 34 per cent. since 1911–20, but for all deaths under one year of age the excess has increased from 32 per cent. in 1911–20 to 38 in 1930–32.

During the March quarters the excess of male over female deaths averaged 36 per cent. in 1914–20, 37 per cent. in 1921–25 and 38 in 1926–32. In 1914–20 and 1921–25 the excess for the September and December quarters was smaller than for the March quarter but in recent years it has increased to about the same level, averaging 36 per cent. in 1926–32.

A better measure of the sex difference in infant mortality is provided by the ratio of the rates rather than of the deaths, thus allowing for the 4 or 5 per cent. excess of males amongst the live births, as in the lower part of Table XVI and in Diagram I. In 1911–20 the male excess on this basis was 30 per cent. for mortality under 1 month and 33 at 1–3 months of age, but only 13 per cent. at 9–12 months. The excess mortality within the first month has only slightly increased in recent years, to 32 per cent. in 1931 and 33 in 1932,

but the excess at 9–12 months has risen to 21 per cent. in 1930 and 1931, and 25 per cent. in 1932.

Infant mortality from the common infectious diseases other than whooping cough has been characterised in most years since 1925 by a smaller male excess than for the other groups of diseases specified. The male deficiency for whooping cough, which was 12 per cent. in 1914–20, has varied in individual years since 1926 between 8 and 22 per cent. For diarrhœa and enteritis the male excess increased from 29 per cent. in 1914–20 to 39 per cent. in 1921–25 and has averaged 42 per cent. in the last 5 years.

Table XVII contrasts the mortality of male with that of female, and of legitimate with that of illegitimate, infants in 1932. For the separate causes distinguished, other than whooping cough, male excess ranges from 7 per cent. for measles to 53 for congenital debility, and 55 for convulsions. The excess for the illegitimate is, as usual, very much greater for syphilis than for any other cause distinguished in the table.

Table XVII.—Infant Mortality by Sex and Legitimacy, 1932.

		Deaths per 1,000 Live Births.						Mortality per cent.				
		All Infants.		Legitimate Infants.		Illegitimate Infants.		Male of Female Infants.			Illegitimate of Legitimate Infants.	
		Male.	Female.	Male.	Female.	Male.	Female.	All Infants.	Legitimate.	Illegitimate.	Male.	Female.
All Causes.	Under four weeks ..	35·95	26·99	34·64	25·90	64·58	50·57	133	134	128	186	195
	4 weeks–3 months ..	12·38	9·23	11·79	8·89	25·18	16·63	134	133	151	214	187
	3–6 months.. ..	10·23	8·00	9·88	7·75	17·92	13·38	128	127	134	181	173
	6–9 „	7·89	6·48	7·83	6·35	9·22	9·22	122	123	100	118	145
	9–12 „	6·95	5·58	6·79	5·52	10·30	6·73	125	123	153	152	122
	Total under 1 year	73·39	56·27	70·93	54·42	127·20	96·52	130	130	132	179	177
All Ages under one Year.	Measles (7)	1·11	1·04	1·10	1·03	1·38	1·28	107	107	108	125	124
	Whooping cough (9)	2·14	2·46	2·17	2·45	1·45	2·80	87	89	52	67	114
	Tuberculosis, all forms (23–32) ..	1·14	0·86	1·13	0·86	1·23	0·98	133	131	126	109	114
	Syphilis (34) ..	0·53	0·42	0·44	0·31	2·47	2·65	126	142	93	561	855
	Convulsions (86) ..	2·44	1·57	2·40	1·52	3·27	2·57	155	158	127	136	169
	Bronchitis and pneumonia (106–109)..	14·46	11·14	14·23	10·99	19·52	14·43	130	129	135	137	131
	Diarrhœa and enteritis (119) ..	6·79	4·99	6·32	4·69	16·98	11·56	136	135	147	269	246
	Developmental and wasting diseases (157–159, 161*a* & *b*)	32·95	25·41	31·96	24·73	54·64	40·14	130	129	136	171	162
	Congenital defects (malformations and atelectasis) (157, 161a) ..	*8·39*	*6·77*	*8·33*	*6·73*	*9·58*	*7·48*	*124*	*124*	*128*	*115*	*111*
	Congenital debility, sclerema and icterus (158, 161b)	*4·19*	*2·73*	*3·99*	*2·61*	*8·49*	*5·22*	*153*	*153*	*163*	*213*	*200*
	Premature birth(159)	*20·37*	*15·92*	*19·63*	*15·38*	*36·57*	*27·44*	*128*	*128*	*133*	*186*	*178*
	Other causes ..	11·83	8·38	11·18	7·84	26·26	20·11	141	143	131	235	257
	All causes	73·39	56·27	70·93	54·42	127·20	96·52	130	130	132	179	177

Distribution throughout the country of Infant Mortality from various causes.—Table XVIII, which is derived from Table 15, furnishes an analysis by cause of the differences in total mortality under one year of age shown in Table VI.

The greatest departures from the average mortality of the whole country in Table 15 are furnished on the one side by North I, which shows excesses under all the causes distinguished, except measles, suffocation and injury at birth, producing a net excess of 14·61 deaths per 1,000 live births over the average for England and Wales; and on the other by the South-East, excluding Greater London, with comparatively favourable experience under every head distinguished except suffocation, yielding a total rate 15·53 lower than the general average.

As usual, three causes contribute more than any other to these differences, the three being bronchitis and pneumonia, diarrhœa, and premature birth. The predominant influence of these causes in determining local variations of infant mortality has been evident in each of the last ten years. Jointly they account in 1932 for 67 per

Table XVIII.—Comparison of Infant Mortality from the Principal Causes in Geographical Regions, 1932.

	Measles (7).	Whooping cough (9).	Tuberculosis, all forms (23–32).	Syphilis (34).	Convulsions (86).	Bronchitis and pneumonia (106–109).	Diarrhœa and enteritis (119).	Congenital malformations (157).	Congenital debility (158).	Premature birth (159).	Injury at birth (160).	Suffocation—in bed, or not stated how (182 pt.).	Other Causes.	All Causes.
Differences from Rates for England and Wales per 100,000 Live Births.														
South-East	+15	− 39	− 6	− 8	−124	−338	+ 89	− 71	− 73	−328	−18	+ 8	− 44	− 937
Greater London	+57	− 19	− 2	+ 3	−147	−210	+285	− 74	− 86	−344	−13	+ 5	− 4	− 549
Remainder of South-East	−52	− 70	−11	−26	− 88	−540	−223	− 66	− 52	−304	−26	+13	−108	− 1,553
North	+27	+ 57	+18	+14	+ 86	+395	+ 65	+ 37	+ 65	+236	+18	−13	+107	+ 1,112
North I	−46	+106	+37	+11	+227	+549	+120	+ 25	+160	+316	−42	−15	+ 13	+ 1,461
„ II	−67	+ 79	+18	− 2	+104	+ 26	− 4	+ 85	+ 3	+308	+52	−17	− 72	+ 513
„ III	+25	+ 22	+29	+16	+ 55	+325	− 20	− 25	− 13	+173	+36	− 3	+246	+ 866
„ IV	+84	+ 50	+ 4	+17	+ 37	+453	+103	+ 65	+ 81	+218	+27	−16	+112	+ 1,235
Midland	−22	+ 1	− 2	+ 5	− 29	+ 19	− 33	+ 8	− 39	+197	+ 2	+14	− 55	+ 66
Midland I	−29	+ 4	—	+13	− 59	+ 5	+ 31	− 3	− 48	+179	+30	+18	− 24	+ 117
„ II	− 9	− 5	− 6	−12	+ 30	+ 46	−159	+ 29	− 23	+232	−53	+ 5	−108	− 33
East	−62	− 34	+39	− 4	− 44	−406	−398	+ 1	+ 20	−150	−29	−10	− 90	− 1,167
South-West	−59	−104	−48	−26	− 72	−468	−336	+ 54	+ 28	−204	−23	+21	−127	− 1,364
Wales	−76	− 17	−46	−18	+325	+169	−156	+ 99	+ 90	+ 93	+20	−20	− 48	+ 415
Wales I	−79	− 1	−51	−11	+325	+262	−160	+128	+ 82	+142	+20	−29	− 6	+ 622
„ II	−69	− 65	−32	−37	+324	−107	−144	+ 15	+112	− 50	+18	+ 9	−175	− 201
Rates per cent. of those for England and Wales.														
South-East	114	83	94	83	38	74	115	88	75	82	92	116	95	86
Greater London	153	92	98	106	27	84	148	87	71	81	94	110	100	92
Remainder of South-East	52	70	89	45	56	58	62	89	82	83	88	127	89	76
North	125	125	118	130	143	131	111	106	122	113	108	73	111	117
North I	57	146	137	123	213	143	120	104	154	117	81	69	101	122
„ II	38	134	118	96	152	102	99	114	101	117	123	65	93	108
„ III	123	110	129	134	127	125	97	96	96	110	116	94	126	113
„ IV	178	122	104	136	118	135	117	111	127	112	112	67	112	119
Midland	80	100	98	111	86	101	94	101	87	111	101	129	94	101
Midland I	73	102	100	128	71	100	105	99	84	110	113	137	98	102
„ II	92	98	94	74	115	104	73	105	92	113	76	110	89	99
East	43	85	139	91	78	68	33	100	107	92	87	80	91	82
South-West	45	55	52	45	64	64	43	109	109	89	90	143	87	79
Wales	30	93	54	62	262	113	74	117	130	105	109	59	95	106
Wales I	27	100	49	77	262	120	73	122	128	108	109	41	99	110
„ II	36	72	68	21	261	92	76	103	138	97	108	118	82	97

cent. of the divergence above the mean in North I, and for 69 per cent. of the divergence below the mean in the South-East, excluding Greater London.

Mortality from bronchitis and pneumonia (considered jointly because of evidence of interchangeability between these forms of return) shows the usual large excess in the North of England, amounting to 43 per cent. in North I, 35 in North IV and 25 in North III. In North II the excess was only 2 per cent. compared with 32 in 1931. In contrast with this the Eastern counties show a rate 32 per cent., the South-West 36 per cent., and the South-East outside Greater London 42 per cent. below the mean. Urbanization also is associated with a higher rate for this as for most other forms of infant mortality. Thus in 1932 (Table 14) the county boroughs outside Greater London showed a rate 30 per cent. above, and rural districts 22 per cent. below, the mean mortality from this cause, the divergence being greatest at 9–12 months of age. Greater London, however, showed a rate only 84 per cent. of that in England and Wales.

Mortality from diarrhœa usually increases from South to North, but this sequence is profoundly modified by the extent of urbanization. Thus in London the 1932 rate was 11·78 per 1,000 live births, a rate not equalled since the hot summer of 1921, and for Greater London the rate was 8·76. This was 32 per cent. higher than in 1931, the increase for the country as a whole being 14 per cent. The mean air temperature of the September quarter was 4 degrees higher than the preceding year at Greenwich, and 3 degrees higher for the country as a whole. Next to the Greater London excess of 48 per cent. over the general average came North I with 20 per cent. excess and North IV with 17. The slightly urbanized regions of the South-West and East gave rates 57 and 67 per cent. below the mean. Table 14 indicates that the county boroughs showed an excess of 21 per cent. and the rural districts a rate 43 per cent. below that for all areas, the divergence being greatest at 3–6 months of age.

Greater London diarrhœa mortality was high throughout the first year of life, but the excess over the general average was only considerable at ages over 3 months, being 12 per cent. in the first 3 months, 73 at 3–6 months, 64 at 6–9, and 66 at 9–12 months (Table 15).

The third chief cause of local differences in infant mortality, premature birth, is more closely associated with geographical position than with urbanization, the range being from 117 per cent. of the general average for North I and II to 81 per cent. for Greater London and 83 per cent. for the remainder of the South-East. The low Greater London rate of 14·76 and the comparatively small difference between the rate of 20·10 for all county boroughs outside Greater London and 17·64 for the rural districts (Table 14) suggest that urbanization has little influence on the rate.

Next to prematurity and bronchitis and pneumonia, which in each of the last eleven years (Table 12) have ranked as the principal

causes of infant mortality, come, for 1932, diarrhœa, congenital malformations, congenital debility, whooping cough and convulsions. Congenital malformation is steadily increasing in importance amongst the causes of infant deaths, its mortality having risen year by year from 4·16 in 1923 to 5·88 per 1,000 live births in 1932. This increase affects all sections of the population to much the same extent, but mortality in 1932 was highest in Wales I and North II, and comparatively low in Greater London.

Congenital debility and convulsions, on the other hand, are seen from Table 12 to be steadily losing their old numerical importance, the rate for each in 1932 being only about 45 per cent. of the corresponding rate ten years earlier.

It may be presumed that much of this decline is due in each case to transfer to other forms of certification. Congenital debility is less frequently returned as a cause of death in Greater London than in any region, and the rate for the county boroughs is considerably less than that for the rural districts during the first four weeks of life. The convulsions rate in 1932 in South-East England is only one-seventh of that in Wales, where it is regularly in excess. In England, however, with few exceptions this mortality decreases with much regularity from North to South.

Mortality at Ages over One Year.

Table XIX states the crude and standardized death-rates at all ages for sexes and persons for the whole country, as well as the mortality per million living at different ages, for 1931 and 1932, and in order to provide means of comparison with experience of some twenty years back, for 1911–14.

Table XIX.—Mortality from all Causes per Million Population, 1911–14, 1931, and 1932.

	Males.			Females.			Persons.		
	1911–14.	1931.	1932.	1911–14.	1931.	1932.	1911–14.	1931.	1932.
All Ages.									
Crude	14,890	13,033	12,745	13,065	11,615	11,396	13,948	12,294	12,043
Standardized A ..	14,841	11,272	10,879	12,260	9,025	8,733	13,475	10,077	9,733
Standardized B ..	15,911	12,178	11,797	13,713	10,337	10,036	14,779	11,215	10,878
0–	40,588	22,416	21,109	33,917	17,454	16,874	37,270	19,962	19,018
5–	3,304	2,292	2,206	3,255	1,992	1,941	3,279	2,144	2,075
10–	1,972	1,464	1,444	2,055	1,475	1,328	2,014	1,470	1,386
15–	2,942	2,594	2,534	2,683	2,393	2,244	2,811	2,493	2,389
20–	3,721	3,325	3,237	3,200	2,891	2,814	3,450	3,102	3,021
25–	4,912	3,475	3,359	4,057	3,266	3,103	4,464	3,366	3,226
35–	8,033	5,760	5,303	6,437	4,514	4,333	7,205	5,086	4,779
45–	14,808	11,487	10,805	11,363	8,250	8,023	13,018	9,760	9,317
55–	29,767	23,861	23,341	22,471	17,673	17,019	25,905	20,605	20,007
65–	62,844	58,487	57,711	50,722	44,166	43,106	56,124	50,554	49,631
75–	135,490	138,867	137,636	114,126	115,075	112,079	122,694	124,526	122,245
85 and upwards	271,337	284,796	281,646	237,360	256,103	255,693	249,201	265,433	264,093

A. English Standard (Population of England and Wales, 1901). B. International Standard.

(*See* page 1.)

At every age distinguished in Table XIX, mortality was lower in 1932 than in 1931, and at every age-group under 75 for males and under 85 for females it was lower than in 1911–14.

The extent of the fall at the various ages can be better appreciated from Table XX, in which the mortality in 1931 and 1932 is expressed as a percentage of the rate in the period 1911–14.

Table XX.—Mortality at various ages from all causes in 1931 and 1932 per cent. of that for the same sex and age in 1911–14.

	Males.		Females.		Persons.	
	1931.	1932.	1931.	1932.	1931.	1932.
All Ages—						
Crude	87·5	85·6	88·9	87·2	88·1	86·3
Standardized A	76·0	73·3	73·6	71·2	74·8	72·2
Standardized B	76·5	74·1	75·4	73·2	75·9	73·6
0–	55	52	51	50	54	51
5–	69	67	61	60	65	63
10–	74	73	72	65	73	69
15–	88	86	89	84	89	85
20–	89	87	90	88	90	88
25–	71	68	81	76	75	72
35–	72	66	70	67	71	66
45–	78	73	73	71	75	72
55–	80	78	79	76	80	77
65–	93	92	87	85	90	88
75–	102	102	101	98	101	100
85 and upwards	105	104	108	108	107	106

At " all ages " for both sexes the decline in the crude death-rate amounts to 14 per cent. (12 per cent. in 1931), which on standardization according to the English standard is increased to 28 per cent. (25 per cent. in 1931). The fall is much greater at 0–5 than at any higher age, amounting in 1932 to about 48 per cent. for males and 50 for females.

After infancy the fall very rapidly decreases with advancing age up to early maturity, reaching a minimum of 13 per cent. for males and 12 per cent. for females at 20–25. The extent of fall then increases to 34 per cent. for males and 33 per cent. for females at 35–45. Thereafter the decrease recorded becomes progressively less for each sex and disappears after 75 for males and after 85 for females.

Mortality at age 0–5 (Table XIX) has been very imperfectly measured during recent years by the crude rate for all these ages jointly. When the birth-rate is falling fast, as during the war and since 1920, the proportion to the whole group aged 0–5 of infants

under one year of age is abnormally low, and the crude death-rate of the group tends to fall merely because the effect of the high mortality of these infants is less in consequence of their smaller numbers.

Table XXI measures the effect of this influence of changes in the birth-rate upon the mortality rate at 0–5 years in 1911–14 and from 1917 onwards. It shows that in all these years the fall of the birth-rate has caused some under-statement of mortality at 0–5 for each sex except during the three years 1920–22, when its temporary rise after the war reversed the process. The fall of 49 per cent. shown for this mortality in Table XX is seen to be slightly over-stated from this cause, being reduced to 47 per cent. when allowance is made for its influence. But this influence has become less important in recent years, its effect in 1932 being to increase crude mortality by 5 per cent. The rate at these ages was lower than in any year save 1930.

Table XXI.—Comparison of Crude and Standardized Death-Rates per 1,000 living at Age 0–5, 1911–14 and 1917–32.

——	Males.		Females.		Persons.	
	Crude.	Stand-ardized.	Crude.	Stand-ardized.	Crude.	Stand-ardized.
1911–14 ..	40·6	40·8	33·9	34·2	37·3	37·5
1917	31·8	34·3	26·3	28·4	29·1	31·4
1918	38·9	43·1	34·1	37·5	36·5	40·3
1919	32·8	36·6	26·4	29·5	29·6	33·1
1920	36·2	31·8	28·8	26·0	32·5	29·0
1921	32·3	29·2	25·8	23·6	29·1	26·4
1922	30·2	28·5	24·5	23·1	27·4	25·8
1923	24·3	25·0	19·6	20·1	22·0	22·5
1924	25·1	27·3	20·2	21·8	22·6	24·6
1925	25·3	27·1	20·7	22·1	23·0	24·6
1926	23·3	24·9	18·8	20·0	21·1	22·4
1927	23·7	25·2	18·9	20·0	21·3	22·6
1928	21·9	23·3	17·4	18·5	19·7	20·9
1929	26·3	27·7	21·6	22·7	24·0	25·2
1930	20·5	21·4	16·0	16·7	18·3	19·1
1931	22·4	23·2	17·5	18·1	20·0	20·6
1932	21·1	22·0	16·9	17·7	19·0	19·9

Mortality at 1–5.—The causes of the great decline in mortality at 0–5 recorded in Table 5 have been already partly dealt with, since 71 per cent. of deaths under 5 in 1932 occurred in the first year of life. But, as shown by Table XXII, mortality has fallen more rapidly for the years immediately following infancy than for the first year of life itself, so the features of the changes in progress at these ages also call for some consideration. Compared with 1911–14 the decline

in 1932 has been least in the first year and greatest in the second, decreasing continuously from the second to the fifth year of life. The second year of life manifests the greatest degree of annual variation and would seem to be the age of greatest susceptibility to environment (*see* Review for 1923, p. 26).

Table XXII.—Mortality per 1,000 living (both sexes), in each of the first Five Years of Life, 1911-14, 1931, and 1932.

Year of Life.	1911–14.	1931.	1932.	1932 per cent. of	
				1911–14.	1931.
0–1	118·16	68·68	67·34	57·0	98·0
1–2	34·06	15·62	14·20	41·7	90·9
2–3	13·68	6·69	6·08	44·4	90·9
3–4	8·32	4·40	4·18	50·2	95·0
4–5	6·14	3·51	3·33	54·2	94·9
0–5 Crude ..	37·27	19·96	19·02	51·0	95·3
0–5 Stand ..	37·52	20·63	19·86	52·9	96·3
1–5 Crude ..	15·62	7·53	6·96	44·6	92·4
1–5 Stand ..	15·54	7·54	6·94	44·7	92·0

The distribution throughout the country of mortality at these ages is shown in Table XXIII, which may be compared with Table VI (Infant Mortality). The greatest excess over the general average recorded in the table is for North IV, which at ages 1–2 shows a rate more than twice, and at 2–5 almost twice, the corresponding rates for the Eastern region, the South-West and the South-East excluding Greater London. Next in order come the other regions of the North of England. The most favourable position at age 1–2 is occupied by the South-West, and at 2–5 by the South-East outside Greater London, the rates for the East being only slightly less favourable. The division of Wales into two regions indicates that Wales II, which is of course mainly rural, had, as in 1931, a mortality for the second year of life much below the general average.

The occurrence of a large reduction of mortality at age 1–2 in good years has been pointed out in previous Reviews. It is to be expected that the most susceptible age would also exhibit the greatest range of regional variation. It has been shown that when the regional rates are expressed as percentages of the rate for England and Wales, their range tends to increase during the first two years of life. In 1931 the range was 49–169 at 9–12 months, 53–190 at 1–2 years and 63–167 at 2–5 years, but in 1932 it was greater at 6–9 months (51–131) than at 9–12 months (62–130), being maximal in

the second year, 60–141, and falling to 69–131 at ages 2–5 (Tables XIII and XXIII).

Table XXIII.—Distribution of Mortality in Early Childhood, 1932.

	Deaths per 1,000 living (both sexes).		Mortality per cent. of that in England and Wales.	
	1–2 years.	2–5 years.	1–2 years.	2–5 years.
England and Wales ..	14·20	4·53	100	100
South-East	12·40	4·04	87	89
Greater London ..	14·43	4·63	102	102
Remainder of South-East.	9·23	3·13	65	69
North	18·26	5·71	129	126
North I	18·32	5·58	129	123
,, II	15·54	5·15	109	114
,, III	16·24	5·67	114	125
,, IV	20·02	5·92	141	131
Midland	13·48	3·94	95	87
Midland I	12·94	3·87	91	85
,, II	14·53	4·08	102	90
East	8·73	3·15	61	70
South-West	8·55	3·16	60	70
Wales	12·10	4·39	85	97
Wales I	12·80	4·55	90	100
,, II	9·94	3·93	70	87
County boroughs* ..	17·61	5·21	124	115
Other urban districts* ..	13·04	4·40	92	97
Rural districts* ..	10·06	3·53	71	78
Greater London—				
Administrative County	18·16	5·62	128	124
Outer Ring	10·58	3·64	75	80

* Excluding Greater London.

The association with urbanization at these four age periods is reflected in the differences between the percentage rates for London and its outer ring, amounting to 51 at 6–9 months, 55 at 9–12 months, 53 at 1–2 years and 44 at 2–5, and by the corresponding differences between the county boroughs and rural districts, namely 49, 43, 53 and 37.

The results of the mortalities of infants and young children recorded during the preceding year 1931 (a census year being more convenient for this purpose) are demonstrated in Table XXIV by showing, in life table form, the numbers of survivors at the end of each of the first five years of life, out of 10,000 children born to the various populations resident in these regions, assuming continuance

of the mortality experience of 1931. This table continues a series commenced in 1911–14, and repeated in 1922, 1923 and 1926, but the new regional classification is now used. The first year survivors were calculated by simple deduction of ten times the infant mortality rate from 10,000, the method of correction employed in 1922 not being deemed necessary in 1931. For following years the survivors to age x were calculated by multiplying the survivors to year x—1 by the ratio of (census population at ages x—1 to x *minus* half the deaths at x—1 to x in 1931) to (census population at ages x—1 to x *plus* half these deaths).

Table XXIV.—Survival Rates of Early Childhood in Geographical Regions and Classes of Area. 1931.

Survivors of 10,000 children born.

	England and Wales.	South-East.	Greater London.	Remainder of South-East.	North.	North I.	North II.	North III.	North IV.	Midland.	Midland I.
At end of—											
First Year	9,336	9,462	9,410	9,545	9,204	9,112	9,246	9,262	9,202	9,334	9,335
Second ,,	9,190	9,365	9,301	9,469	9,000	8,843	9,031	9,097	9,007	9,192	9,185
Third ,,	9,128	9,323	9,256	9,430	8,918	8,738	8,954	9,017	8,932	9,129	9,115
Fourth ,,	9,088	9,293	9,225	9,402	8,864	8,672	8,899	8,967	8,883	9,092	9,079
Fifth ,,	9,056	9,269	9,198	9,383	8,824	8,630	8,859	8,925	8,846	9,062	9,048

	Midland II.	East.	South-West.	Wales.	Wales I.	Wales II.	Density Summary of all Areas outside Greater London.			London Administrative County.
							County Boroughs	Other Urban Districts.	Rural Districts.	
At end of—										
First Year	9,331	9,441	9,471	9,258	9,236	9,326	9,230	9,352	9,422	9,350
Second ,,	9,206	9,358	9,374	9,096	9,054	9,225	9,032	9,214	9,317	9,217
Third ,,	9,156	9,315	9,337	9,028	8,980	9,175	8,953	9,150	9,272	9,166
Fourth ,,	9,120	9,288	9,309	8,983	8,930	9,144	8,905	9,106	9,240	9,135
Fifth ,,	9,091	9,270	9,281	8,944	8,891	9,107	8,868	9,072	9,214	9,104

Contrasting the results with those for 1926 and 1911 where the areas are comparable, in the country as a whole 70 more children out of 10,000 would survive to 5 years at 1931 rates than at 1926 rates, and 971 more than at 1911 rates. In the North 71 more would survive than in 1926, and in Wales 76 less, whilst in London Administrative County 68 more would survive; or contrasted with 1911, 1,032 more would survive in the North, 791 more in Wales, and 1,134 more in London. The county borough and rural district aggregates, which may be compared without appreciable error with the slightly different aggregates used in 1911 or 1926 (*see* Review for 1931, p. 10) show improvements in the 5 year survivors of 59 and 44 respectively since 1926, and 1,090 and 637 respectively since 1911.

Comparing one region with another, the expectation of 5 year survival according to 1931 rates was greatest (almost 94 per cent.) in the South-East outside Greater London, and approached 93 per cent. in the South-West and East, and 92 in Greater London, but

in North I it was little over 86 per cent., and in the other regions of the North and in Wales I it ranged about 88 or 89 per cent. The South-East, South-West and East of England show very similar survival rates to 5 years (9,269, 9,281, 9,270), and contrasting them with the North (8,824) it is seen that of each 1,000 children born, 45 more may expect to die within 5 years of birth in the North than the South, that is to say 118 instead of 73.

Corresponding to this present difference of 45 per 1,000, in 1911 the difference between South, as then defined, and North was 49, in 1923 it was again 49, and in 1926, 40. How serious is this handicap is perceived when it is remembered that the births in the North numbered 215,051 in 1931, so that if these children could be subjected to the Southern death-rates almost 10,000 more in each year would have the expectation of reaching 5 years than under conditions pertaining to the North. The probable relevance of different housing conditions on the one hand and atmospheric differences on the other to this result are examined in a later section (*see* Table XXVII and pp. 32–38).

Causes of Juvenile Mortality.—London mortality at 1–2 and 2–5 years was higher in 1932 than the preceding year, this being mainly due to measles, which continues to be epidemic in the even years. The London experience for each year from 1922–32, depicted in Table XXV, indicates that measles, whooping cough and pneumonia have been chiefly responsible for the wide fluctuations in mortality during the second year of life, and when these causes together with influenza are omitted, the residual death-rates have followed a declining course with only slight fluctuations.

Table XXV.—Mortality from Various Causes at 1–2 and 2–5 years of Age in London Administrative County in each year 1922 to 1932.

	1–2 years.							2–5 years.	
	Death rate per 1,000 Living.						Death rate per cent. of England and Wales.	Death rate from all causes.	
	Measles.	Whooping cough.	Influenza.	Pneumonia.	Other causes.	All causes.		Per 1,000 Living.	Per cent. of England and Wales.
1922..	8·08	5·16	1·25	12·81	9·47	36·77	148	12·03	155
1923..	1·87	1·47	0·09	4·51	7·31	15·25	81	5·26	93
1924..	6·93	2·12	0·50	9·05	6·64	25·24	115	6·84	117
1925..	1·87	3·42	0·21	5·99	6·21	17·70	82	5·30	87
1926..	5·55	0·99	0·09	6·15	6·33	19·11	104	5·19	99
1927..	1·04	2·38	0·38	6·15	5·95	15·90	81	4·81	83
1928..	8·33	2·01	0·25	5·64	6·32	22·55	139	5·71	114
1929..	1·44	6·19	1·06	9·75	6·19	24·63	105	5·68	86
1930..	7·55	0·61	0·05	4·35	5·97	18·53	135	4·70	101
1931..	0·76	1·59	0·34	5·13	5·46	13·28	85	4·15	86
1932..	6·38	1·78	0·15	3·87	5·98	18·16	128	5·62	124

The chief causes of death in England and Wales at ages 1–5 are set forth in Table XXVI, which also provides comparison with 1931 and with 1911–14.

TABLE XXVI.—Deaths from Various Causes per Million living at Ages 1–5 Years in 1911–14, 1931 and 1932. (Both Sexes.)

Cause of Death.	Death-rate.			Cause of Death.	Death-rate.		
	1911–14.	1931.	1932.		1911–14.	1931.	1932.
7. Measles	2,673	923	991	105: 2. Laryngitis	152	22	16
8. Scarlet fever	373	87	93	106. Bronchitis	872	260	207
9. Whooping cough	1,216	540	603	107. Broncho-pneumonia ..	2,170	1,779	1,371
10. Diphtheria	781	428	388	108 & 109. Pneumonia (Lobar and not otherwise defined).	866	448	356
11. Influenza	60	224	149				
23. Tuberculosis of Respiratory System.	237	90	86	Other Respiratory Diseases ..	140	67	69
24. Tuberculosis of Nervous System.	705	384	382	118: 1. Inflammation of the Stomach.	94	32	21
25. Tuberculosis of Intestines and Peritoneum.	391	79	86	119 & 120. Diarrhœa and enteritis	1,639	271	267
26–32. Other Tuberculous Diseases.	288	114	127	130. Acute nephritis ..	89	28	29
63: 1. Rickets	172	80	66	157. Congenital malformations.	85	87	90
79. Meningitis	451	114	126	181. Burns and scalds ..	360	196	185
86. Convulsions	460	87	85	Other Violence	274	278	257
				Other Causes	1,071	916	912
				All Causes	15,619	7,535	6,960

At these susceptible ages mortality decreased from 15,619 per million in 1911–14 to 6,872 in 1930, rose to 7,535 in 1931, and fell again to 6,960 in 1932. The principal causes showing an increase over the preceding year were measles, whooping cough, meningitis, congenital malformations and tuberculosis of the intestines and peritoneum. The slight increase for the last of these causes interrupted a series of decreases which had occurred each year since 1923. It was demonstrated in Table XXIV of the Review for 1931 that the quinquennial rates since 1876–80 at ages 0–5 have fallen continuously, both for tuberculosis of the nervous system and of the intestines and peritoneum. To maintain continuity with that table the rates per 1,000 at 0–5 years in 1932 were 0·42 for the nervous system, 0·10 for the intestines and peritoneum, 0·23 for other forms and 0·75 for all forms of tuberculosis.

Association of Overcrowding and Latitude with Rates of Mortality.—It is commonly supposed that the descending progression of mortality rates from North to South, especially noticeable in childhood, is partly the result of climate, and partly of the impact of differing industrial conditions upon the children's health, acting directly through the accompanying housing environment and indirectly through the social constitution of the population which provides the children's parentage. In the Review for 1931 (Table XX and p. 26) it was pointed out that it is unnecessary to suppose that climatic differences are of paramount importance in causing this progression, since a measure of the social and environmental conditions afforded by the mean number of persons per room shows in each class of area the same downward sequence, in the order North, Wales, Midlands, South, which is also the order characteristic of juvenile mortality rates.

It was also shown from the 1926–30 rates that there was a much closer association between mortality of young children and density per room when aggregates having similar average densities per acre were compared than there was between mortality and density per acre when aggregates having similar densities per room were compared.

An alternative measure of overcrowding in an area is the percentage of the population living in houses where the ratio of persons to rooms exceeds some standard figure. It is found that large districts arrange themselves in much the same order on this basis whether the standard be 1, $1\frac{1}{2}$, or 2 per room, and the last of these is employed in Table XXVII, where the county boroughs have been grouped according to the zone of latitude in which they are situated, and also according to the percentage of their populations (in private families) living at densities exceeding 2 per room in 1931. The mean annual death-rates in the triennium 1930–32 within each group of towns at ages 0–5, 5–15 and 65 and upwards have then been expressed in terms of the rate for all the county boroughs, at the same age, taken as 100. The results of this analysis are also depicted in Diagram 2.

Mortality from all causes at ages under 5 is seen to increase with greater overcrowding within each latitude zone, so that towns with 9–18 per cent. of their population overcrowded show mortalities half as great again as the towns with less than 3 per cent. overcrowded. At ages 5–15 this effect of overcrowding at a given latitude is also present, but not nearly so evident as at the pre-school ages, as may be seen from the wider dispersion of the graphs for the latter than for the former. At ages 65 and over, given for comparison, the relation with overcrowding still persists, but the excess at 9–18 per cent. overcrowded over that at 0–3 per cent. only amounts to one-tenth to one seventh of the rate.

For the combined mortality from bronchitis and pneumonia at ages under 5, the rate of increase with overcrowding at each latitude is very much greater, and for measles and whooping cough combined it is also greater, than for all other causes combined. The bronchitis and pneumonia rates in towns with 9–18 per cent. overcrowded are from 2 to 3 times the rates in towns with less than 3 per cent. overcrowded at the same latitudes, and this is also true of measles and whooping cough, though irregularities due to employing only a 3 year period for diseases such as these with a short epidemic cycle tend to obscure the effect. For the other causes group the excess is very much less, being of a similar order to that found for all causes at ages 5–15. The contrast is made clear by the much wider separation of the graphs in the upper part of Diagram 2.

When no attention is paid to the housing density, the northward rate of increase in mortality rates, as depicted by the broken lines in Diagram 2, is exaggerated by the fact that the overcrowding rate increases in general as we proceed northwards. Thus, of the 25 county

boroughs with 9 per cent. or more of their populations living over 2 per room only four are situated south of latitude 53°N, whereas of the 41 county boroughs with less than 6 per cent. of their populations at this density, 28 are so situated.

Table XXVII.—Mortality of Childhood and late life, 1930–32, in the County Boroughs distributed according to Latitude and Rate of Overcrowding, per cent. of that in all County Boroughs.

Age.	Cause.	Per cent. at density exceeding 2 per Room.	Degrees of North Latitude.				
			50°–	51°–	52°–	53°–	54°–
Under 5 Years.	All Causes	0–.. ..	59	55	76	81	—
		3–.. ..	76	76	86	92	—
		6–.. ..	—	91	87	104	81
		9–18 ..	86	91	117	127	120
		18 and up ..	—	—	—	—	128
		All densities	76	80	87	111	124
Under 5 Years.	Bronchitis and Pneumonia.	0–.. ..	33	32	63	54	—
		3–.. ..	59	67	79	86	—
		6–.. ..	—	88	75	103	73
		9–18 ..	90	93	159	139	135
		18 and up ..	—	—	—	—	157
		All densities	62	73	80	113	147
Under 5 Years.	Measles and Whooping Cough.	0–.. ..	22	36	58	39	—
		3–.. ..	82	63	69	70	—
		6–.. ..	—	67	97	102	33
		9–18 ..	59	123	72	154	130
		18 and up ..	—	—	—	—	135
		All densities	70	72	81	116	129
Under 5 Years.	Other Causes ..	0–.. ..	76	68	85	99	—
		3–.. ..	81	82	92	99	—
		6–.. ..	—	96	90	105	92
		9–18 ..	88	86	108	118	113
		18 and up ..	—	—	—	—	116
		All densities	82	84	91	109	114
5–15	All Causes ..	0–.. ..	86	58	86	87	—
		3–.. ..	84	81	90	94	—
		6–.. ..	—	95	86	101	100
		9–18 ..	101	82	93	124	114
		18 and up ..	—	—	—	—	128
		All densities	88	82	87	108	123
65 and upwards.	All Causes	0–.. ..	88	86	94	95	—
		3–.. ..	92	92	96	105	—
		6–.. ..	—	99	98	105	111
		9–18 ..	100	101	105	107	101
		18 and up ..	—	—	—	—	105
		All densities	92	94	97	105	104

It is therefore essential, if it is desired to examine the relation of latitude *per se* to mortality, to do this within groups of areas having similar housing conditions as measured by the ratio of persons to rooms. This can be done by reading along the first 4 horizontal rows of figures in each section of Table XXVII, or by looking at the individual graphs in Diagram 2, each representing a group of towns with a similar degree of crowding.

At ages under 5 mortality from all causes shows only a moderate northward increase in the less crowded groups of towns, but a considerable rate of northward increase in the group with 9–18 per cent. overcrowded. For bronchitis and pneumonia, and also for measles and whooping cough, the northward increase in mortality risk, as indicated by the upward gradient of the graphs, is much more pronounced than for other causes in the towns with high rates of crowding, though not in the better housed towns. The graphs for other causes at 0–5 years are similar to those for all causes at 5–15, the northward increase being considerable only in the least favourably housed groups of towns. At ages over 65 the effect of latitude when thus separated from the associated housing differences is seen to be very small in every group.

These results lend further support to the suggestion arising out of the analysis of infant mortality rates (Table VIII) that the northward increase in mortality is mainly attributable to two factors: (1) greater crowding of the population as measured by persons per room, with the accompanying social and economic disadvantages, and the increased danger of "droplet" and other infections; and (2) the effect of diminished solar radiation, with which may go a higher degree of atmospheric impurity, on the mortality of children from the less obvious manifestations or sequelæ of rickets.

The association of mortality at various ages with rates of overcrowding is also demonstrated in Diagram 3, where the 12 regions have been arranged in ascending order of the proportions of their populations living at densities exceeding 2 per room, and the rates of mortality in 1931 in terms of that in England and Wales, taken from Table XXIX, are graphically depicted. The overcrowding rates per 1,000 for the regions in the order shown were as follows: 27, 28, 32, 37, 52, 53, 65, 67, 71, 75, 94, 202. If 3 persons per 2 rooms be taken as the criterion instead of 2 per room the regions fall into precisely the same order.

At ages 0–5 the general upward gradient of mortality with overcrowding rate is seen to exceed that at any subsequent age. At the school ages 5–15 it is not so pronounced, and it continues to become less evident with advancing age. Greater London manifests exceptionally low rates, having regard to its housing density, at each age, and this applies also, though not to the same extent, to Midland I. On the other hand Wales I and II show exceptionally

high mortality rates at ages 15–35, having regard to their moderate rates of overcrowding.

When the Metropolitan boroughs, the county boroughs and the county aggregates of urban and of rural districts are grouped according to the mean number of persons in private families living per room in 1931, and the death-rates in the triennium 1930–32 are calculated for each group so obtained, as in Table XXVIII, and Diagram 4, it is very evident that the mortality of children aged 1-5 is much more sensitive to crowding within the house than is the mortality in the first year or in any subsequent period of life. At these ages, when the rates are expressed in terms of the rate for England and Wales taken as 100, there is in London a steady increase from 93 for the metropolitan boroughs with densities of ·70–·85 persons per room to 175 for those with 1·45 or more per room. The corresponding range at 0–1 years is 96 to 114, and at 5–15 years it is 88 to 119. For the county boroughs there is a progressive increase at 1–5 years from 71 for the towns with densities of ·55–·70 per room to 191 for those with 1·15–1·30 per room, the corresponding range at 0–1 years being 90 to 145 and at 5–15 years 92 to 162.

For other urban district and rural district aggregates the gradients with increasing density of occupation are not quite so great as for the large towns, but are again steeper at 1–5 years than at any other age period.

At later ages, in London the association of mortality risk with crowding index is not so evident as in childhood. In the county boroughs, other urban districts and rural districts the association decreases in importance with each advance in age, becoming only slight at 45–65 for each sex, and still less for persons over 65.

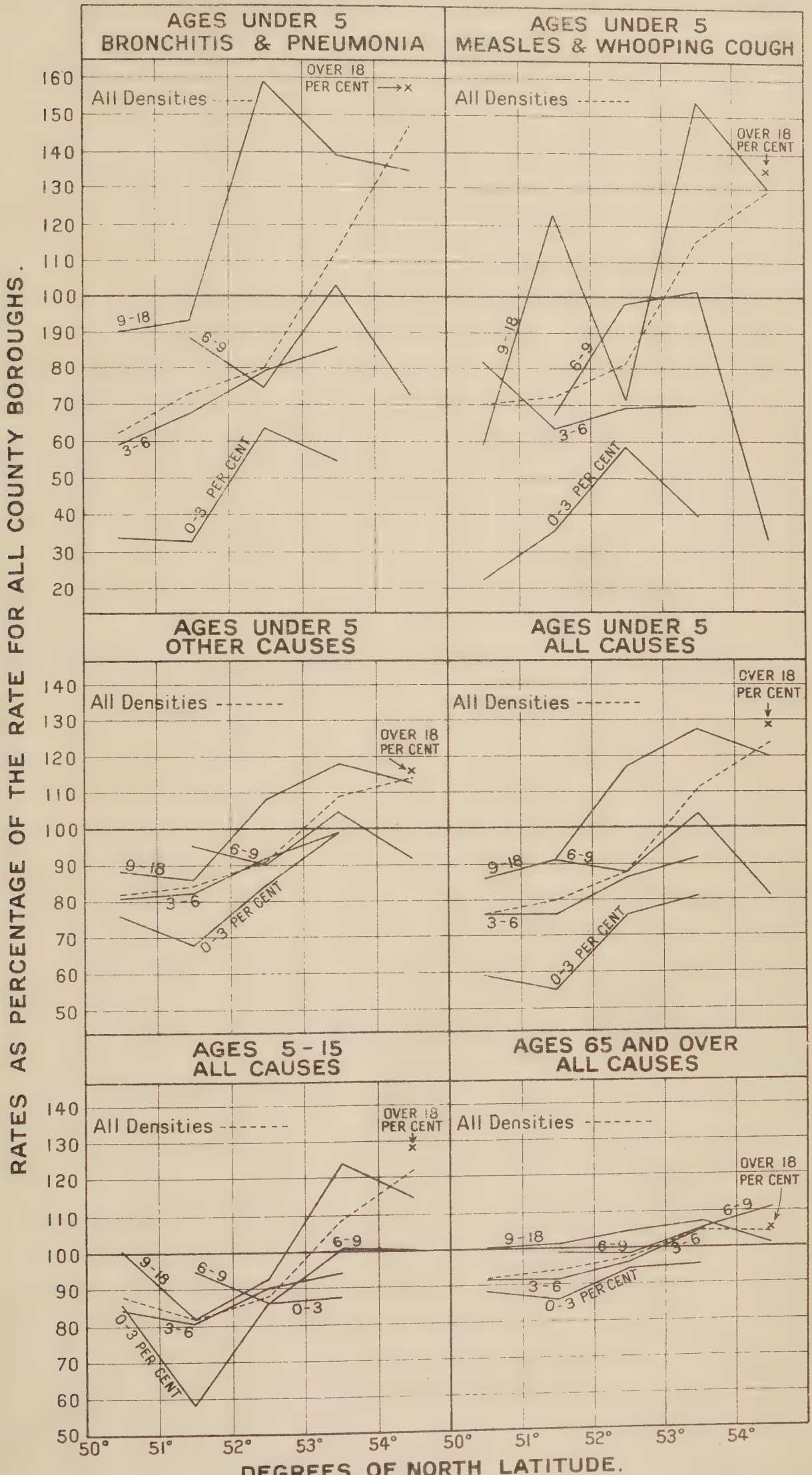
The upper part of Diagram 5 depicts the actual standardized death-rates at all ages, from Table XXVIII, the left-hand series showing the upward trend with density per room within each class of area, and the right hand series the dependence upon urbanization within groups of areas having similar density per room.

These Diagrams 4 and 5 distinguish for the first time the effects of crowding within the house from the effects of density of houses per acre, and show that for populations living at a given density per room the advantage, especially to young children, of rural over urban conditions is small when compared with the advantage of an area with a low average number of persons per room over an area of the same type with a high average number.

The lower part of Diagram 5 depicts the relative effects of extreme differences in mean density per room as age advances, distinguishing the sexes between ages 15 and 65, but not beyond 65. In the county aggregates the women show a greater susceptibility than the men, as indicated by the distance between the two graphs in each case, but this is not so evident in the large towns.

The excessive sensitiveness of children of pre-school age to environmental conditions within the home is more clearly brought

DIAGRAM 2. *Mortality 1930-32 in the County Boroughs grouped according to Latitude and the Percentage of their Populations living at densities 2 per room or over.*



826, 961, 6445, 625, 2/35.

Malby & Sons, Lith.

DIAGRAM 3. *Mortality in 1931 at different Ages in the Various Regions arranged in order of the Percentage of Persons in Private Families living in overcrowded conditions* Rates per cent of those at the same ages in England & Wales.*

* *i.e. 1½ and over, or 2 and over, per room; in either case the order is the same.*

826.

Malby & Sons, Lith.

DIAGRAM 4. *Mortality 1930-32 at Separate Ages according to Mean Density per room and Urbanisation of Areas.*

——— *COUNTY BOROUGHS.* - - - - - *OTHER URBAN DISTRICTS.* ..... *RURAL DISTRICTS.*

—·—·— *LONDON.*

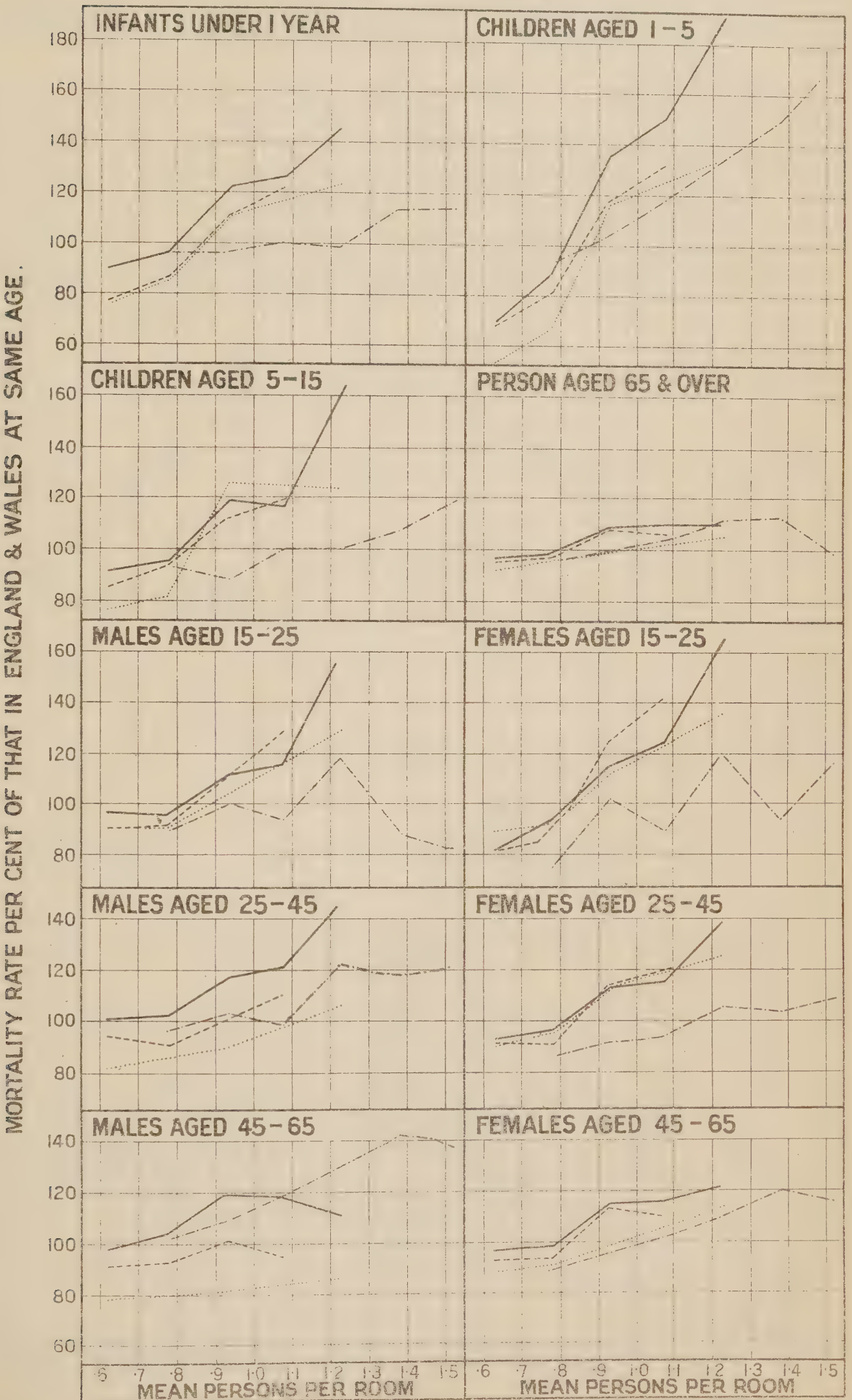


DIAGRAM 5. *Mortality 1930-32 according to Mean Density per room and Urbanization of Areas.*

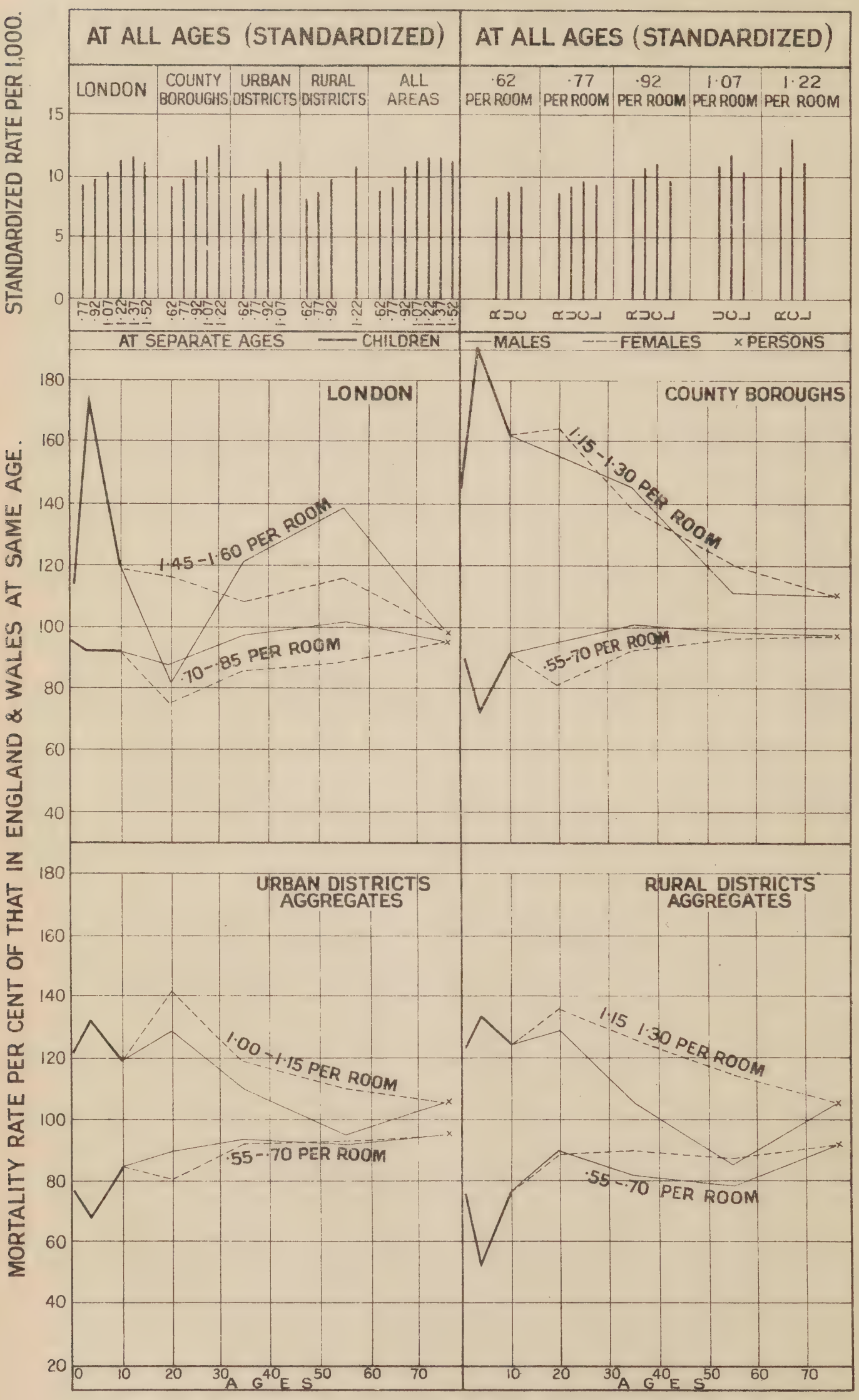


Table XXVIII.—Mortality in 1930–32, at various Ages in different Classes of Area, when County Aggregates, County Boroughs, and Metropolitan Boroughs are grouped according to the Mean Density of Persons per room in 1931.

		*Rates per 100,000 living								Mortality per cent. of that in England and Wales.							
		Mean persons per room.								Mean persons per room.							
		·55–	·70–	·85–	1·00–	1·15–	1·30–	1·45–	All densities.	·55–	·70–	·85–	1·00–	1·15–	1·30–	1·45–	All densities.
0–1* Persons	London	—	6,149	6,118	6,378	6,280	7,196	7,276	6,345	—	96	96	100	99	113	114	100
	County Boroughs	5,758	6,113	7,747	8,042	9,274	—	—	7,263	90	96	122	126	145	—	—	114
	Other Urban Districts ..	4,892	5,535	7,071	7,773	—	—	—	5,934	77	87	111	122	—	—	—	93
	Rural Districts..	4,865	5,412	7,094	—	7,826	—	—	5,606	76	85	111	—	123	—	—	88
	All Areas ..	5,049	5,655	7,358	7,569	7,870	7,196	7,276	6,374	79	89	115	119	123	113	114	100
1–5 Persons	London	—	667	745	841	956	1,056	1,248	824	—	93	104	118	134	148	175	115
	County Boroughs	506	642	965	1,075	1,368	—	—	875	71	90	135	150	191	—	—	122
	Other Urban Districts ..	484	581	835	947	—	—	—	647	68	81	117	132	—	—	—	90
	Rural Districts..	370	480	831	—	956	—	—	518	52	67	116	—	134	—	—	72
	All Areas ..	433	569	901	986	1,100	1,056	1,248	715	61	80	126	138	154	148	175	100
5–15 Persons	London	—	170	161	182	182	195	217	175	—	93	88	100	100	107	119	96
	County Boroughs	167	172	216	212	294	—	—	203	92	95	119	116	162	—	—	112
	Other Urban Districts ..	154	169	203	216	—	—	—	178	85	93	112	119	—	—	—	98
	Rural Districts..	140	149	230	—	226	—	—	159	77	82	126	—	124	—	—	87
	All Areas ..	150	164	207	206	235	195	217	182	82	90	114	113	129	107	119	100
15–25 Males.	London	—	255	288	269	341	254	236	278	—	88	100	93	118	88	82	96
	County Boroughs	278	273	325	334	452	—	—	312	96	94	112	116	156	—	—	108
	Other Urban Districts ..	261	264	321	372	—	—	—	281	90	91	111	129	—	—	—	97
	Rural Districts..	261	260	297	—	372	—	—	270	90	90	103	—	129	—	—	93
	All Areas ..	264	265	318	326	385	254	236	289	91	92	110	113	133	88	82	100
15–25 Females.	London	—	193	260	228	307	241	296	240	—	75	102	89	120	94	116	94
	County Boroughs	208	238	295	319	420	—	—	278	81	93	115	125	164	—	—	109
	Other Urban Districts ..	207	222	320	364	—	—	—	245	81	87	125	142	—	—	—	96
	Rural Districts..	229	235	287	—	349	—	—	244	89	92	112	—	136	—	—	95
	All Areas ..	216	227	295	302	356	241	296	256	84	89	115	118	139	94	116	100
25–45 Males.	London	—	429	456	439	539	522	537	461	—	97	103	99	122	118	121	104
	County Boroughs	448	453	519	536	644	—	—	500	101	102	117	121	145	—	—	113
	Other Urban Districts ..	416	402	452	486	—	—	—	417	94	91	102	110	—	—	—	94
	Rural Districts..	363	383	399	—	469	—	—	385	82	86	90	—	106	—	—	87
	All Areas ..	398	409	488	496	550	522	537	443	90	92	110	112	124	118	121	100
25–45 Females.	London	—	324	347	354	398	387	407	350	—	86	92	94	106	103	108	93
	County Boroughs	349	364	424	435	521	—	—	404	93	97	113	116	139	—	—	107
	Other Urban Districts ..	346	344	427	448	—	—	—	364	92	91	114	119	—	—	—	97
	Rural Districts..	339	359	426	—	473	—	—	365	90	95	113	—	126	—	—	97
	All Areas ..	343	351	415	414	464	387	407	376	91	93	110	110	123	103	108	100
45–65 Males.	London	—	1,700	1,805	1,961	2,167	2,337	2,304	1,903	—	102	109	118	130	141	139	114
	County Boroughs	1,642	1,721	1,998	1,976	1,849	—	—	1,881	99	103	120	119	111	—	—	113
	Other Urban Districts ..	1,532	1,551	1,702	1,574	—	—	—	1,578	92	93	102	95	—	—	—	95
	Rural Districts..	1,306	1,335	1,371	—	1,431	—	—	1,336	79	80	82	—	86	—	—	80
	All Areas ..	1,450	1,538	1,868	1,869	1,826	2,337	2,304	1,663	87	92	112	112	110	141	139	100
45–65 Females.	London	—	1,069	1,148	1,224	1,316	1,433	1,384	1,180	—	89	96	102	110	120	116	99
	County Boroughs	1,162	1,184	1,374	1,386	1,454	—	—	1,299	97	99	115	116	121	—	—	109
	Other Urban Districts ..	1,116	1,110	1,354	1,319	—	—	—	1,159	93	93	113	110	—	—	—	97
	Rural Districts..	1,049	1,095	1,179	—	1,382	—	—	1,101	88	91	98	—	115	—	—	92
	All Areas ..	1,098	1,119	1,328	1,320	1,383	1,433	1,384	1,197	92	93	111	110	116	120	116	100
65 and over. Persons	London	—	6,987	7,346	7,669	8,221	8,302	7,231	7,453	—	95	100	104	112	113	98	101
	County Boroughs	7,116	7,326	8,038	8,114	8,079	—	—	7,713	97	99	109	110	110	—	—	105
	Other Urban Districts ..	7,023	7,151	7,940	7,800	—	—	—	7,272	95	97	108	106	—	—	—	99
	Rural Districts..	6,784	7,052	7,296	—	7,704	—	—	7,019	92	96	99	—	105	—	—	95
	All Areas ..	6,937	7,148	7,865	7,889	8,020	8,302	7,231	7,365	94	97	107	107	109	113	98	100
All Ages Standardized. Persons	London	—	934	987	1,034	1,114	1,156	1,123	1,013	—	95	101	105	114	118	114	103
	County Boroughs	919	964	1,141	1,169	1,291	—	—	1,080	94	98	116	119	132	—	—	110
	Other Urban Districts ..	870	904	1,072	1,104	—	—	—	942	89	92	109	113	—	—	—	96
	Rural Districts..	815	863	996	—	1,095	—	—	876	83	88	102	—	112	—	—	89
	All Areas ..	855	907	1,096	1,115	1,170	1,156	1,123	981	87	92	112	114	119	118	114	100

* At age 0–1 the rates are per 100,000 live births.

out by the wide dispersion of the graphs at this age in Diagram 5. Whilst the gravitation of the less physically and mentally fit into unsatisfactory conditions of housing must be a factor to be taken into account in producing an association between mortality rates and overcrowding rates, this cannot be supposed to affect the pre-school child to a greater extent than either infants or children at school, nor would it be expected that its effect on mortality of adults would diminish with advancing age, but rather increase as the selection proceeded. Physical selection cannot, in short, explain Diagram 5.

At ages 1–5 children are more exposed to the risks attending a bad home environment than in infancy or later, and the conclusion seems inevitable that the specially high association of their mortality rates with measures of overcrowding within the house, demonstrated in Diagrams 3, 4 and 5, is due to their high susceptibility to those dangers, whether they arise from the poverty which usually goes with overcrowding or from the insufficient room accommodation *per se*, producing a higher intensity of " droplet " infection and other harmful effects. It seems fair to conclude that it is at these ages that the greatest benefits may be anticipated as the overcrowding evil is mitigated.

Mortality at Different Periods of Life in different Parts of England and Wales.—In the Reviews for 1923 and 1926 mortality was analysed at 9 age groups for each sex in London and in each class of area of four geographical divisions of England and Wales. Such an analysis is more accurate at a census year than at any other period, but it was not possible to include such a tabulation in the Review for 1931. Table XXIX therefore relates to 1931, and shows the mortality at 9 age groups, and the crude and standardized rates at all ages, in each region and sub-region, and in the density aggregates outside Greater London and in London Administrative County. In the lower portion of the table the rates are expressed in terms of the rate for England and Wales taken as 100. Diagram 3, already referred to, depicts the rates on the latter basis.

The range of regional variation is, as usual, greatest at ages under 5, and least at ages over 75. For males the decline in the extent of regional variation as age advances is interrupted by a secondary maximum at 45–55, and for females by a very pronounced secondary maximum at 15–25, due mainly to the high rates in Wales at these ages, and by another increase in variation at 65–75.

It is noteworthy that the South-East outside Greater London gives the lowest rates at every age for females, but for males the East gives better or equally good rates at every age over 5. Greater London rates compare favourably with the country as a whole at each age for females, but only at ages under 45 for males.

The range of variation with urbanization declines for each sex to ages 25–35, increases again to ages 45–55 and then declines.

Table XXIX.—Mortality from All Causes at Various Ages in Geographical Regions and Classes of Area. Rates per 100,000 Living and as per centages of Mortality in England and Wales, 1931.

MALES.

	England and Wales.	South-East.	Greater London.	Remainder of South-East.	North.	North I.	North II.	North III.	North IV.	Midland.	Midland I.	Midland II.	East.	South-West.	Wales.	Wales I.	Wales II.	Density Summary of all Areas outside Greater London.			London Admin. County.
																		County Boroughs.	Other Urban Districts.	Rural Districts	
All Ages—																					
Crude..	1,303	1,219	1,216	1,224	1,391	1,370	1,401	1,348	1,421	1,267	1,284	1,235	1,268	1,370	1,354	1,312	1,474	1,404	1,296	1,243	1,351
Standardized ..	1,127	1,014	1,084	915	1,286	1,333	1,204	1,231	1,315	1,110	1,132	1,069	936	988	1,211	1,245	1,117	1,282	1,112	961	1,177
0–	2,242	1,733	1,926	1,431	2,828	3,304	2,729	2,527	2,811	2,208	2,223	2,177	1,765	1,714	2,477	2,627	2,027	2,735	2,199	1,811	2,148
5–	188	158	159	155	232	244	251	248	212	175	183	160	153	152	197	199	190	218	189	167	172
15–	296	272	274	269	322	392	332	313	298	288	287	292	268	273	343	354	307	316	299	282	291
25–	347	317	331	294	382	424	376	343	391	347	350	341	275	323	398	407	372	390	340	308	345
35–	576	515	536	483	643	666	586	590	675	573	598	527	474	519	658	661	651	681	559	471	616
45–	1,149	1,082	1,190	917	1,276	1,157	1,146	1,226	1,372	1,131	1,170	1,059	892	996	1,184	1,237	1,033	1,357	1,078	875	1,349
55–	2,386	2,293	2,494	2,004	2,580	2,324	2,329	2,581	2,718	2,314	2,389	2,174	1,890	2,271	2,521	2,564	2,412	2,662	2,336	1,942	2,776
65–	5,849	5,446	5,855	4,966	6,602	6,222	5,925	6,584	6,910	5,779	5,885	5,586	4,854	5,135	6,178	6,236	6,059	6,536	5,890	4,975	6,258
75 and upwards ..	15,331	14,823	15,393	14,261	16,501	16,905	15,085	16,164	17,017	15,309	15,618	14,766	14,284	14,474	15,715	15,935	15,364	16,125	15,359	14,521	15,749

Mortality per cent. of that in England and Wales.

All Ages—																					
Crude..	100	94	93	94	107	105	108	103	109	97	99	95	97	105	104	101	113	108	99	95	104
Standardized ..	100	90	96	81	114	118	107	109	117	98	100	95	83	88	107	110	99	114	99	85	104
0–	100	77	86	64	126	147	122	113	125	98	99	97	79	76	110	117	90	122	98	81	96
5–	100	84	85	82	123	130	134	132	113	93	97	85	81	81	105	106	101	116	101	89	91
15–	100	92	93	91	109	132	112	106	101	97	97	99	91	92	116	120	104	107	101	95	98
25–	100	91	95	85	110	122	108	99	113	100	101	98	79	93	115	117	107	112	98	89	99
35–	100	89	93	84	112	116	102	102	117	99	104	91	82	90	114	115	113	118	97	82	107
45–	100	94	104	80	111	101	100	107	119	98	102	92	78	87	103	108	90	118	94	76	117
55–	100	96	105	84	108	97	98	108	114	97	100	91	79	95	106	107	101	112	98	81	116
65–	100	93	100	85	113	106	101	113	118	99	101	96	83	88	106	107	104	112	101	85	107
75 and upwards ..	100	97	100	93	108	110	98	105	111	100	102	96	93	94	103	104	100	105	100	95	103

Table XXIX—*continued.*

FEMALES.

	England and Wales.	South-East.	Greater London.	Remainder of South-East.	North.	North I.	North II.	North III.	North IV.	Midland.	Midland I.	Midland II.	East.	South-West.	Wales.	Wales I.	Wales II.	Density Summary of all Areas outside Greater London.			London Admin. County.
																		County Boroughs.	Other Urban Districts.	Rural Districts	
All Ages—																					
Crude..	1,161	1,086	1,058	1,131	1,230	1,204	1,256	1,193	1,253	1,111	1,122	1,091	1,201	1,287	1,222	1,151	1,410	1,211	1,178	1,168	1,147
Standardized ..	903	786	827	726	1,048	1,118	996	1,004	1,054	888	894	877	783	790	1,034	1,054	978	1,006	900	820	889
0–	1,745	1,365	1,505	1,145	2,183	2,582	2,135	1,984	2,129	1,756	1,802	1,664	1,253	1,288	1,944	2,042	1,648	2,124	1,707	1,415	1,710
5–	174	148	157	133	211	226	210	219	200	151	150	152	152	148	197	199	190	192	173	160	165
15–	265	223	231	208	300	361	302	287	285	250	247	255	243	250	387	401	345	290	266	258	249
25–	327	285	289	278	361	405	341	333	366	312	311	314	305	315	442	438	454	350	330	326	302
35–	451	390	405	365	500	554	487	482	495	467	472	457	421	426	535	533	543	497	449	430	436
45–	825	745	772	705	927	920	875	923	941	793	812	756	749	752	940	957	901	920	807	750	830
55–	1,767	1,573	1,638	1,482	2,010	1,953	1,917	1,910	2,100	1,752	1,743	1,770	1,536	1,614	1,969	2,030	1,842	1,948	1,790	1,581	1,745
65–	4,417	3,950	4,196	3,645	5,227	5,070	4,573	5,085	5,491	4,290	4i232	4,401	3,761	3,743	4,901	5,088	4,580	4,865	4,440	3,958	4,505
75 and upwards ..	13,349	12,509	12,857	12,109	14,719	15,050	14,025	14,560	14,892	13,399	13,495	13,201	12,972	12,717	14,257	13,899	14,785	13,933	13,411	13,021	13,290

Mortality per cent. of that in England and Wales.

All Ages—																					
Crude..	100	94	91	97	106	104	108	103	108	96	97	94	103	111	105	99	121	104	101	101	99
Standardized ..	100	87	92	80	116	124	110	111	117	98	99	97	87	87	115	117	108	111	100	91	98
0–	100	78	86	66	125	148	122	114	122	101	103	95	72	74	111	117	94	122	98	81	98
5–	100	85	90	76	121	130	121	126	115	87	86	87	87	85	113	114	109	110	99	92	95
15–	100	84	87	78	113	136	114	108	108	94	93	96	92	94	146	151	130	109	100	97	94
25–	100	87	88	85	110	124	104	102	112	95	95	96	93	96	135	134	139	107	101	100	92
35–	100	86	90	81	111	123	108	107	110	104	105	101	93	94	119	118	120	110	100	95	97
45–	100	90	94	85	112	112	106	112	114	96	98	92	91	91	114	116	109	112	98	91	101
55–	100	89	93	84	114	111	108	108	119	99	99	100	87	91	111	115	104	110	101	89	99
65–	100	89	95	83	118	115	104	115	124	97	96	100	85	85	111	115	104	110	101	90	102
75 and upwards ..	100	94	96	91	110	113	105	109	112	100	101	99	97	95	107	104	111	104	100	98	100

Mortality of the Aged.—The rapid increase in the relative magnitude of this section of the population continues to form an outstanding feature of our vital statistics. Persons over 70 years of age were 297 per 10,000 total population in 1911, 344 in 1921, and 426 in 1931, and were estimated as forming 434 per 10,000 in 1932.

The causes of death at ages over 70 are grouped, as in previous years, in Table XXX. The year was noteworthy for its low mortality rates from bronchitis and pneumonia at these ages. The cancer rate increased further for males, but not for females.

Table XXX.—Mortality over 70 Years of Age in 1911–20, 1921–30, 1930, 1931 and 1932, from the chief Causes of Death.

	Deaths from each Cause per 1,000 Total Deaths.					Mortality per 1,000 Living.				
	1911–20.	1921–30.	1930.	1931.	1932.	1911–20.	1921–30.	1930.	1931.	1932.
MALES.										
Influenza (11)	20	26	9	23	23	2·3	2·8	0·9	2·6	2·6
Cancer (45–53)	81	107	122	113	119	9·4	11·8	13·0	12·6	13·2
Heart Diseases (90–95)	148	205	287	300	308	17·1	22·7	30·7	33·4	34·1
Disease of Blood Vessels, including Cerebral Hæmorrhage (82, 96, 97, 99 and 100)	163	195	177	171	170	18·8	21·6	18·9	19·0	18·8
Bronchitis (106)	137	110	71	78	63	15·9	12·1	7·6	8·7	7·0
Pneumonia (107–109)	34	35	31	32	31	4·0	3·9	3·3	3·6	3·4
Chronic Nephritis (131 and 132)	29	29	36	33	35	3·3	3·2	3·9	3·7	3·9
Old Age (162)	222	140	100	87	87	25·7	15·5	10·7	9·7	9·6
Other Causes	166	153	167	163	163	19·0	17·2	18·0	17·9	18·0
All Causes	1,000	1,000	1,000	1,000	1,000	115·5	110·8	107·1	111·2	110·6
FEMALES.										
Influenza (11)	24	31	9	31	31	2·3	3·0	0·9	3·0	2·9
Cancer (45–53)	87	105	120	107	109	8·7	10·2	11·0	10·3	10·3
Heart Diseases (90–95)	153	223	308	315	322	15·2	21·6	28·3	30·2	30·3
Disease of Blood Vessels, including Cerebral Hæmorrhage (82, 96, 97, 99 and 100)	157	181	179	164	170	15·5	17·6	16·4	15·7	16·0
Bronchitis (106)	149	117	70	87	69	14·8	11·4	6·5	8·3	6·5
Pneumonia (107–109)	32	34	30	33	33	3·2	3·3	2·8	3·2	3·1
Chronic Nephritis (131 and 132)	21	23	30	28	29	2·1	2·2	2·8	2·7	2·7
Old Age (162)	248	165	123	109	111	24·6	16·0	11·3	10·5	10·4
Other Causes	129	121	131	126	127	12·7	11·7	12·0	12·0	11·9
All Causes	1,000	1,000	1,000	1,000	1,000	99·0	97·0	91·9	95·9	94·1
PERSONS.										
Influenza (11)	22	29	9	28	27	2·3	3·0	0·9	2·9	2·8
Cancer (45–53)	85	106	121	111	114	9·0	10·8	11·8	11·3	11·5
Heart Diseases (90–95)	151	215	299	308	316	16·0	22·0	29·3	31·5	31·9
Disease of Blood Vessels, including Cerebral Hæmorrhage (82, 96, 97, 99 and 100)	159	187	178	167	170	16·9	19·2	17·5	17·1	17·1
Bronchitis (106)	144	114	70	82	67	15·2	11·7	6·9	8·4	6·7
Pneumonia (107–109)	33	34	31	33	32	3·5	3·5	3·0	3·4	3·2
Chronic Nephritis (131 and 132)	24	26	33	30	32	2·6	2·6	3·2	3·1	3·2
Old Age (162)	237	154	113	100	100	25·0	15·8	11·1	10·2	10·1
Other Causes	145	135	146	141	143	15·3	14·0	14·5	14·3	14·4
All Causes	1,000	1,000	1,000	1,000	1,000	105·8	102·7	98·2	102·2	100·9

Centenarians.—Among the deaths registered during the year there were 109 of reputed centenarians, 15 of whom were males and 94 females. In the preceding three years the numbers were 98, 61 and 91 respectively. Particulars of the ages returned and of the regions concerned are given in Table XXXI.

Table XXXI.—Age at Death of Centenarians, 1932.

	Males.					Females.							
	100 and over	100	101	102	103	100 and over	100	101	102	103	104	105	106
Greater London ..	3	2	1	—	—	20	8	6	5	—	1	—	—
Remainder of South-East	3	1	1	—	1	19	7	4	5	2	—	—	1
North	1	—	1	—	—	9	4	1	4	—	—	—	—
Midlands	2	—	—	2	—	25	11	5	3	3	2	1	—
East	3	1	1	—	1	7	4	2	1	—	—	—	—
South-West	3	—	2	—	1	9	4	2	1	2	—	—	—
Wales	—	—	—	—	—	5	2	2	1	—	—	—	—
England and Wales ..	15	4	6	2	3	94	40	22	20	7	3	1	1

CAUSES OF DEATH.

The causes of death of males and females at 18 groups of ages are stated in Table 21 for the whole country, and in Table 22 further detail of age is shown for all causes of significance at ages 0–5. In Table 23 deaths from each cause distinguished are tabulated by month of occurrence and by sex (but not by age). Table 23 differs from all others in referring to date of occurrence and not of registration. Table 21 includes the full International List of causes of death, as revised in 1929. The information as set out in this table is also available for London, and for the county borough, urban district and rural district aggregates of England and Wales. Certain of the numbered items in it are subdivided, and where this occurs the letters (*a*), (*b*), &c., indicate subdivisions in international use, and numbers (1), (2), &c., subdivisions made without international agreement. All other abstracts of the causes of death are arranged in the form of the short list of causes adopted by the Registrar-General in consultation with the Ministry of Health for use during 1931–40. The relation of this list to the detailed International List, as revised by the International Commission in 1929, is shown at the head of Table 24.

The contents of every heading in both the short and the detailed list now in use are defined in the Registrar-General's "Manual of the International List of Causes of Death" (1929 Revision),* which should be consulted in all cases where it is desired to ascertain the precise significance of any heading in the lists.

In Table 24 deaths are shown for the several geographical regions of the country, for urban and rural portions of administrative

* Copies may be obtained from H.M. Stationery Office. Price 3*s.* net.

counties, and for county and metropolitan boroughs, arranged by sex, age, and the short list of causes as set out at the head of the Table. The same information, though not by age, is also available for each individual administrative area.

In addition to the above tables, which relate exclusively to the year 1932, Table 6 contains a statement of the number of deaths registered in each year 1922–32 from each cause distinguished in Table 21 so far as available, with distinction of sex but not of age; while Table 7 states the corresponding crude death-rates per million living for persons, males and females, so far as these can be regarded as of any significance, no rates being shown for causes which give a rate of less than five per million population. But the crude rates in Table 7 are liable to be misleading as indices of the progress of mortality even where their numerical basis is adequate. Owing to the rapid ageing of the population at the present time as a result of simultaneous fall in birth and death-rates the rates shown in Table 7 for causes mainly affecting old people tend automatically to increase, and thus to overstate mortality from such causes as cancer, cerebral hæmorrhage and heart disease. As this overstatement had become seriously misleading in many cases, Table 8 was inserted to correct it by showing the course of mortality from each cause dealt with when allowance is made for such population changes by standardization (see page 1). Owing to the clerical labour involved in the preparation of these rates the list of causes in Table 8 is much shorter than that in Table 7, and rates are shown only for males and females separately, and not for both sexes jointly. Tables Nos. 11 and 12 state the mortality during the eleven years 1922–32 of infants under one year of age from the causes of chief importance at that age, but without distinction of sex.

1, 2. **Typhoid and Paratyphoid Fevers.**—The number of deaths classified to this heading during 1932 was 258. Of these, 39 or 15 per cent. were ascribed to paratyphoid infection, as against 66, or 26 per cent., in 1931, and only 6, or 0·25 per cent., in 1911, the first year for which the information is available.

The standardized rates corresponding to these deaths, 6 per million persons living (Table 9), 7 for males and 5 for females (Table 8), are the same as for 1931, which were the lowest recorded.

Table 9 shows that this rate is quite trifling compared with those of earlier years, the rate for 1871–75, for instance, having been 371 per million, or over 60 times that for 1932.

The distribution of this mortality throughout the country is outlined in Table XXXII.

The highest mortality rate in 1932 for any region is that for North II. The Eastern region follows next, and Wales shows the lowest rate. Excess of mortality in the small towns had been the general rule during the preceding twenty years, and in 1932 the small towns outside Greater London had a rate of 9 per million, the rural districts 8, and county boroughs 4.

Table XXXII.—Typhoid and Paratyphoid Fevers; Mortality, Prevalence and Fatality at all ages. Measles and Whooping Cough; Mortality at ages under five years, and Proportion of Deaths occurring in the First One or Two Years of Life, 1932.

	Typhoid and Paratyphoid Fevers.			Measles.		Whooping Cough.	
	Deaths per million living.	Cases† per million living.	Deaths per 1,000 cases notified.	Deaths per 100,000 living at 0–5.	Deaths at 0–2 per cent. of those at all ages.	Deaths per 100,000 living at 0–5.	Deaths at 0–1 per cent. of those at all ages.
England and Wales	6	63	101	102	62	96	48
South-East	5	54	102	136	60	79	48
Greater London ..	5	52	100	187	62	90	47
Remainder of South-East ..	6	57	106	57	50	62	51
North	9	92	94	119	66	124	47
North I	6	65	95	56	60	133	52
,, II	22	295	73	47	54	125	51
,, III ..	8	91	93	115	63	114	44
,, IV ..	7	59	115	166	68	124	45
Midland	5	49	99	69	62	101	45
Midland I ..	5	47	108	67	61	101	46
,, II ..	5	54	85	74	64	102	44
East	9	44	213	36	43	75	49
South-West ..	5	59	91	43	46	44	55
Wales	3	24	129	25	58	71	59
Wales I	3	24	130	25	58	80	56
,, II	3	23	125	26	59	46	71
County boroughs* ..	4	50	83	117	67	121	46
Other urban districts*	9	85	103	68	57	88	46
Rural districts* ..	8	65	124	41	50	72	55
Greater London :—							
Admin. County ..	5	48	95	262	65	116	46
Outer Ring ..	6	56	104	111	55	64	47

* Excluding Greater London. † Including cases in Port Sanitary Districts.

Prevalence (Table 26) and fatality (Table XXXIII) were much the same in 1932 as in other recent years, though both have decreased greatly from the levels of 20 years ago. Their distribution throughout the various regions in 1932 is also shown in Table XXXII.

In the small towns and rural districts of Wales the notification rate was the lowest ever recorded. Prevalence was highest and fatality lowest in North II. Fatality was highest in the East. The proportion of paratyphoid to total notifications ranged from 9·7 in Wales, 14·0 in the South West, 15·0 in the East, 23·9 in the North, 30·2 in the South East, to 36·0 per cent. in the Midlands.

The highest mortality rate recorded in Table 10 is, for counties of over 100,000 population, 72 per million in Yorks, North Riding. The county boroughs with highest rates are Eastbourne (35), Hastings (32), Bootle (26), and Warrington (25).

6. **Small-pox.**—The deaths allocated to this cause numbered 3, a smaller number than in any of the preceding thirteen years. The mortality record for this disease is contained in Table 9, which shows that the standardized rate for 1932 was less than 0·5 per million, indicated by 0 in the table, as in fifteen other years since the 1901–05 epidemic. In the remaining eleven of these years the rate has been one per million.

Of the 3 deaths classed to small-pox, a female infant aged 3 weeks was certified as dying from pyæmia due to small-pox, and a female aged 79 as dying from cardiac failure resulting from senility and variola. For the third, small-pox was stated as a contributory cause, the allocation to this heading being in accordance with the rule giving preference to the infectious disease. This was a male aged 56 with a myeloid epulis and pyelitis.

The type of disease prevalent in 1932, though not specified in the records, is indicated by the low fatality rate of 1·5 per 1,000 notified cases (Table XXXIII). Since 1923, when it suddenly fell from 27·7 to 2·8 per 1,000 cases, the rate has shown but slight fluctuations, reaching 4·3 in 1928.

The notified cases numbered 2,039, compared with 5,664 in 1931, and 11,839 in 1930, and of these, 76 per cent. occurred in the South-East region. The counties (with county boroughs) returning highest rates of prevalence, with the rates per 1,000 population in each case, are found from Table 29 to have been—Leicestershire, 0·53; London, 0·25; Bedfordshire, 0·25; Essex, 0·15; and Norfolk, 0·11.

7. **Measles.**—The deaths registered from this cause numbered 3,411 corresponding to a mortality of 85 per million population. But allowance for decreased proportion of children in the present population increases the rate on standardization from 93 to 134 for males and from 77 to 123 for females. The death-rate for children under 15 years of age, 355 per million, is seen from Table 9 to have been lower in 1919, 1921, 1926, 1929 and 1931. During last century this rate was on an altogether higher level.

The distribution throughout the country of mortality from measles is stated in Table XXXII in the form of death-rates per 100,000 living at ages 0–5. Deaths at these ages in 1932 formed 88 per cent. of the total, and statement in this form prevents the comparison being prejudiced by varying proportions of children in the populations compared.

The relation of measles and whooping cough mortality at ages under 5 to latitude and to overcrowding have been referred to in Table XXVII and Diagram 2.

Table XXXIII.—Fatality of certain Infectious Diseases (Deaths per 1,000 Notified Cases), 1911–32.*

Year.	1. Enteric (Typhoid and Para-typhoid) Fever.	6. Small-pox.	8. Scarlet Fever.	10. Diphtheria.	15. Erysipelas.	16. Poliomyelitis (including polioencepha-litis).	17. Encephalitis Lethargica.	18. Cerebro-spinal fever (meningo-coccal meningitis).
1911	174	78·0	18·1	103	39	?	?	?
1912	191	73·2	18·6	96	39	?	?	?
1913	182	87·0	16·1	88	35	283	?	1,089
1914	194	61·5	17·2	99	42	348	?	1,257
1915	199	141·3	18·6	107	46	331	?	630
1916	174	113·2	17·8	101	39	270	?	656
1917	205	333·3	15·3	100	43	469	?	663
1918	201	30·8	20·5	106	47	1,004	?	673
1919	147	77·6	14·7	90	42	297	533	727
1920	171	114·1	12·0	81	52	404	539	911
1921	158	15·9	9·5	72	55	314	493	1,007
1922	191	27·7	12·7	78	53	352	742	1,047
1923	140	2·8	11·6	68	50	185	517	934
1924	120	3·5	10·5	60	52	183	279	746
1925	139	1·7	10·8	58	57	370	520	876
1926	133	1·8	8·3	59	55	181	583	926
1927	103	3·2	6·8	52	56	203	713	911
1928	124	4·3	5·7	52	55	306	819	1,061
1929	133	3·6	6·0	55	58	263	999	882
1930	106	2·4	6·7	47	56	212	1,241	938
1931	110	1·6	6·6	53	66	247	1,471	650
1932	101	1·5	6·2	54	68	237	1,463	568

* The rates in this table are given with reserve, being in some respects unsatisfactory. For the years 1911–13 cases of disease among non-civilians have been excluded from the notification returns, but it has not been possible to distinguish their deaths; for the years 1920–1925 inclusive both cases and deaths relate to civilians only; for all other years the figures relate to the total population.

The numbers relating to small-pox in some years are too small to yield significant rates, but their basis of fact can be ascertained from Tables 6 and 28, and the rates quoted serve to bring out the extremely mild type of disease prevalent in 1921–32. The rates for poliomyelitis include polioencephalitis, which was not distinguished in the notification returns until 1919. The extraordinary rise in 1918 is partly ascribable to certification of a number of deaths from the then " new disease," encephalitis lethargica, as polioencephalitis, but mainly to a reduction in notifications unaccompanied by significant change in the number of deaths (*see* Report for 1918). The rates from this disease will be found to differ from some of those published in the Annual Reports of the Chief Medical Officer of the Ministry of Health, partly because polioencephalitis is included throughout and partly because special inquiries made by the Ministry in certain years have led to revision of the returns for those years, which is not embodied in Table XXXIII. The cases there referred to are similar for each year dealt with, being in all cases derived from the published notification returns. The latter source of discrepancy applies also to cerebro-spinal fever, and in this case there is a possibility that some cases of posterior basal meningitis may not have been notified as cerebro-spinal fever though all such deaths are included in the table.

Table 10 shows that, of administrative counties with over 100,000 population, London returned the highest death-rate, 189 per million, or twice the rate in England and Wales, Essex 110, and Stafford 109, coming next. The highest county borough rates were—Bootle, 531, Liverpool 361, and Rotherham 344.

8. **Scarlet Fever.**—Deaths registered from this cause numbered 530, the smallest number yet recorded, but the rate at ages under 15 was slightly higher (46 per million) than in 1931 (45).

The progress of the decline from the maximum decennial rate of 1861–70 (Table 9) may be traced in the following statement of proportionate figures for subsequent periods, taking the rate of 2,617 in that decade as 1,000—1871–80, 729; 1881–90, 345; 1891–1900, 168; 1901–10, 119; 1911–20, 54; 1921–30, 28; 1931, 17; 1932, 18. Thus the mortality of 1932 was less than 2 per

cent of that experienced 60 years earlier. The records of individual years since 1881 indicate that, ignoring increases which were not maintained over at least two years, the downward trend has been interrupted by short periods of rising rates which have failed to compensate for the preceding fall. Such periods were 1888–90, 1891–93, 1898–1902, 1911–14, 1917–20, and 1928–30, and it is noteworthy that several of these were coincident with similar periods of increase in the diphtheria death rate (1891–93, 1912–14, 1917–20, 1928–30).

Table XXXIII shows that the fatality of cases of this disease was 6·2 in 1932, compared with a mean rate of 6·4 per 1,000 cases notified in the preceding five years. This rate is only about one-third of that at the commencement of the record in 1911, when the notifications were first tabulated, scarlet fever and small-pox showing much the greatest declines of fatality in the Table.

The distribution of the disease according to urbanization and geographical location is given in Table XXXIV. Increased prevalence and mortality compared with 1931 are recorded in Greater London, North I, Wales I and the South West, whilst the Midlands

Table XXXIV.—Scarlet Fever and Diphtheria, 1932 : Mortality at Ages under 15 Years, Prevalence and Fatality at All Ages.

	Scarlet Fever.				Diphtheria.		
	Deaths per million living at 0–15.	Cases per 100,000 living at all ages.	Deaths per 1,000 cases notified.	Deaths at 0—5 per 100 at all ages.	Deaths per million living at 0–15.	Cases per 100,000 living at all ages.	Deaths per 1,000 cases. notified.
England and Wales	46	212	6	46	229	108	54
South-East	51	240	6	43	192	106	43
Greater London	66	296	6	48	251	140	41
Remainder of South-East ..	29	154	6	27	101	53	48
North	52	220	6	54	315	128	64
North I	73	304	7	44	67	51	41
„ II	45	155	9	53	488	163	79
„ III	49	221	6	63	330	131	64
„ IV	44	203	6	56	379	147	64
Midland	29	161	5	45	138	73	51
Midland I	26	157	5	46	139	82	46
„ II	35	168	6	43	135	55	67
East	25	138	6	6	186	78	64
South-West	33	149	7	32	165	81	50
Wales	66	254	8	44	282	155	52
Wales I	77	310	8	43	263	151	51
„ II	30	98	10	57	340	165	56
County boroughs*	49	224	6	54	302	142	54
Other urban districts*	40	185	7	41	188	77	64
Rural districts*	31	141	7	31	148	63	66
Greater London { Admin. County ..	82	326	6	54	324	188	38
Greater London { Outer Ring	49	263	6	40	175	88	48

* Excluding Greater London.

registered a higher mortality but lower prevalence. The notification rate was greatest in London Administrative County, followed by Wales I and North I, and lowest in Wales II. The fatality ratio was lowest in the Midlands and highest in Wales II.

Children under 5 provided 45·7 per cent. of the deaths, compared with 43·0 in 1931, 42·4 in 1926–30 and 60·6 in 1901–05.

Table 10 shows that, amongst counties with over 100,000 population, mortality was highest in Monmouth (58 deaths per million as compared with an average of 13 for all counties) and Sussex West (31).

The highest rates amongst the county boroughs (average 13) are those of Wakefield (117) and Newport (Mon.) (100).

9. **Whooping Cough.**—The deaths allocated to this heading numbered 2,956 (1,302 males and 1,654 females). The excess for females is shown by Table 6 to be a constant feature of this disease, and tends to increase with age. The percentage ratios of the numbers of female deaths to male deaths in 1932 are 125 at 0–3 months, 118 at 3–6 months, 101 at 6–12 months, and 140, 154 and 141 in the second, third and fourth years of life respectively, the ratios between the death rates being slightly higher owing to the excess of males at risk at these ages. An increasing female excess after 3–6 months, at which age the excess is scarcely appreciable when averaged over a period of years, has been a constant feature of the records of the last four decades.

The death-rate per million living at ages under 15 reached a maximum of 1,511 for the five years 1866–70, after which, with a single exception, the quinquennial rates progressively declined to 387 in 1926–30. In 1931 the rate was 263, and in 1932 it was 310 (Table 9.).

The distribution of mortality at ages under 5 and the proportion of deaths under 1 year of age are given in Table XXXII.

The rule of increase of mortality with urbanization was maintained in 1932, the county borough rate being nearly double that for the rural districts; mortality in London was also much higher than in the Outer Ring. The four Northern regions gave the highest rates and the South West and Wales II gave the lowest.

Wales II showed the highest proportion of deaths at ages under 1 year, and as usual the proportion in the rural districts exceeded that in the towns.

10. **Diphtheria.**—The 2,339 deaths in 1932 include 1,122 males and 1,217 females. A female excess is shown also by the standardized death-rates (Table 8), as in each year 1923 to 1930, though the crude death-rate (Table 7) is generally higher for males. For 1932 the crude rates were 58 per million both for males and females, and the standardized rates 77 for males and 83 for females.

The history of diphtheria mortality is best expressed by the death-rate from diphtheria and croup at ages under 15 in Table 9, for during last century much diphtheria was evidently returned as croup, and the larger proportional child population in itself tended to produce a higher crude death-rate at all ages. In 1861–65 this rate was 1,422 per million, but fell to 891 in the next quinquennium,

and the 5-yearly rates then showed only slight fluctuations until the end of the century. The downward trend of annual rates since 1900 has been interrupted by short periods of increase. These occurred in 1912–14, 1917–20, 1924–26 and 1927–30, a contingent rise in scarlet-fever mortality occurring in three of these periods. The rate in 1932, 229 per million living under 15, is the lowest recorded. (Table 9.)

Table XXXIV shows that diphtheria mortality was highest in North II, followed by North III and IV, and Wales II, and lowest in North I. For the country as a whole, outside London, the rate increased regularly with urbanization, and the London rate was also in excess of that for London's Outer Ring. It seems probable that diphtheria is still much more freely returned in some sections of the population than in others. Thus the frequency of its notification has been greatest in London in each of the years 1916-32, with the exception of 1931 when the London rate was exceeded in Wales II.

The ratio of deaths to cases notified ranged from 38 per 1,000 in London to 79 in North II. The London ratio has been lower than in any other section of the population in each of the last eight years, and this may arise from a varying standard of diagnosis, more complete notification or more effectual treatment.

Table 10 shows that the counties, with over 100,000 population, with highest mortality in 1932 were Denbighshire (203 per million), also highest in 1930 and 1931, Flintshire (142), Carmarthen (117) and Monmouthshire (96). The highest rates among county boroughs (average 76) were those for Dewsbury (557), Wakefield (502), Kingston-upon-Hull (418) and York (258).

11. **Influenza.**—The deaths assigned to this cause numbered 13,156, 6,162 of males and 6,994 of females. The resultant crude mortality rate of 327 per million is reduced on standardization, by

Table XXXV.—Influenza Mortality per million Population during the first 3 and last 9 months of each Year, 1921–32.

	January–March.	April–December.
1921	356	198
1922	1,854	133
1923	240	214
1924	1,322	213
1925	783	175
1926	298	206
1927	1,827	147
1928	332	152
1929	2,450	173
1930	225	94
1931	958	165
1932	926	131

allowance for the increased age of the population, to 250 (Table 9), 263 for males and 237 for females (Table 8). Since the pandemic of 1918–19 this standardized rate has been exceeded in 7 out of the 12 years.

Attention has been drawn in previous Reviews to the heavy mortality in the first quarter of the year. In this respect the experience of 1932 is much the same as in other years since 1918–19, the mortality in the latter nine months of the year being subject to much slighter annual fluctuation than that in the first quarter, as shown in Table XXXV.

The distribution of influenza mortality throughout the country is indicated in Table XXXVI.

Table XXXVI.—Influenza; Mortality. Encephalitis Lethargica and Cerebro-spinal Fever; Mortality, Prevalence and Fatality, 1932.

	Influenza.	Encephalitis Lethargica.			Cerebro-Spinal Fever.		
	Deaths per Million Living.	Deaths per Million Living.	Cases per Million Living.	Deaths per 100 Cases Notified	Deaths per Million Living.	Cases per Million Living.	Deaths per 100 Cases Notified
England and Wales..	327	21	14	146	30	53	57
South-East	320	15	13	117	23	37	63
Greater London ..	280	13	10	125	26	43	61
Remainder of South-East	382	18	17	109	19	28	68
North..	269	25	14	178	46	87	53
North I	267	27	12	231	78	144	54
,, II	271	16	14	117	21	37	56
,, III	296	19	9	210	73	155	47
,, IV	253	31	18	166	25	39	65
Midland	374	22	11	195	29	55	53
Midland I	389	24	15	159	22	34	63
,, II ..	345	18	4	440	43	94	45
East	425	24	20	119	15	16	93
South-West	456	18	23	77	9	15	61
Wales..	364	21	15	139	14	15	92
Wales I	345	20	14	137	16	19	86
,, II	417	23	16	145	7	4	167
County boroughs* ..	288	24	14	167	34	60	56
Other urban districts*	345	23	16	145	31	56	56
Rural districts* ..	415	20	15	132	27	49	56
Greater London { Admin. Co.	280	14	11	120	34	60	56
Greater London { Outer Ring	280	12	9	131	18	25	73

* Excluding Greater London.

The highest regional rate is that for the South-West, followed by the East and Wales II, while the lowest rates are those recorded for the Northern regions and Greater London. Mortality generally was

highest in the rural districts, decreasing with urbanization to a minimum in London, the rate in the Administrative County being the same as in the Outer Ring.

In these respects the mortality from influenza contrasts with the incidence of the infantile epidemic diseases which follow an almost constant rule of increase with urbanization and from the South to the North. In 16 of the 22 years, 1911–32, for which comparison is possible, the highest mortality from influenza has been recorded in the rural districts.

The separate tabulation of deaths from influenza with stated respiratory complications (mostly pneumonia) in Table XXXVII affords the means of comparing the varying proportions of deaths so returned in the several classes of area. It will be seen that the proportion is lowest in the rural areas and increases with urbanization to a maximum in London.

Table XXXVII.—Deaths from Influenza with stated Respiratory Complications (11*a*) per cent. of all Deaths from Influenza (11).

	England and Wales.	London.	County Boroughs.	Other Urban Districts.	Rural Districts.
Oct. 1918–Mar. 1919	80	85	81	79	78
1926	61	70	67	58	55
1927	69	79	73	69	64
1928	64	71	68	62	58
1929	75	84	78	73	68
1930	63	73	67	60	57
1931	69	76	74	67	64
1932	68	77	70	67	63

15. **Erysipelas.**—Deaths attributed to erysipelas numbered 990, 503 of males and 487 of females, corresponding to standardized death-rates of 23 for males and 21 per million for females. These rates attained their lowest level in 1923, 15 and 14 respectively, but in recent years mortality has increased (Table 8). A similar course has been followed by the standardized rates for carbuncle and boil (No. 151), which were higher in 1932 than in any of the preceding 14 years, having increased since 1924. The rates for acute infective osteomyelitis and periostitis (No. 154) also reached their lowest level in 1926 (males) and 1923 (females) and then increased, whilst for diseases of the ear and mastoid, fatal cases of which are almost entirely infective, the rates have risen from 35 for males and 26 for females in 1924 to 49 and 34 respectively in 1932. In the section on puerperal mortality the secular and seasonal trend of mortality from diseases chiefly streptococcal or staphylococcal in origin is compared with that for puerperal sepsis. (Tables LXVI and LXVII.)

At ages under 5 the erysipelas death-rate per 100,000 living was 9 in 1896–1900, 8 in 1901–5, 6 in 1906–10, 4 in 1915–20, and 3 in 1923, but has risen again to 7 in 1932. In infants under 1 year the rate per 100,000 births fell from 33 in 1896–1900 to 11 in 1923, and has risen to 28 in 1931, and 26 in 1932. At ages 5–25 there has been no increase since 1923, the rates being only 4 per million, and at ages over 25 standardized mortality has increased from 22 to 31 per million for males and from 18 to 22 for females.

The notification rate, which rose from 32 per 100,000 in 1923 to 45 in 1929 and 1930, declined to 36 in 1932 (Table 26). In London this rate reached 54 in 1930 and fell to 51 in 1932.

16. **Acute Poliomyelitis.**—The recent decline in mortality and prevalence of this disease from the high level reached in 1926 gave place to an increase in 1932. Deaths, including those from acute polioencephalitis, numbered 178, compared with 98 in 1931. The standardized death-rate was 6·3 for males and 5·1 for females. The cases notified, numbering 656 of poliomyelitis and 94 of polioencephalitis, were in excess of the four preceding years (Table 28). The seasonal distribution of these cases conformed to the usual type, prevalence being highest from August to October (Table 27).

17. **Encephalitis Lethargica.**—Deaths attributed to this disease numbered 825, 402 of males and 423 of females, yielding standardized death-rates of 19 per million for males and 18 for females. These are the lowest rates since 1923 (Table 8). The 564 notifications (Table 28) show a decline for the eighth year in succession, and are considerably less than deaths, yielding a fatality ratio of 1,463 deaths per 1,000 notifications. This ratio has exhibited wide fluctuations since 1919, reaching 742 per 1,000 notifications in 1922, thereafter declining rapidly to a minimum of 279 in 1924, and then rising in each successive year to 1,471 in 1931. This later increase is probably due to the inclusion from year to year of an increasing number of deaths from chronic forms of the disease contracted in earlier years which tends to vitiate the relation between the deaths registered and the new cases of the disease notified during the year. It is also probable that some deaths certified as due to the disease were not recognized and notified as such during life.

Table XXXVI shows that prevalence was highest in the South-West and East; in London fatality and more especially prevalence are, as in earlier years, below the general average and the table suggests the likelihood that the disease may be very much over-diagnosed elsewhere.

As in 1931, the highest mortality was recorded in North IV. In each of the last ten years the North has given the highest rate of any of the large regions, and London has shown a rate below average.

18. **Cerebro-spinal Fever** (*Meningococcal Meningitis*).—Deaths from this cause numbered 1,213. Of these 718 were of males and 495 of females, corresponding to standardized rates of 46·4 and 31·8 per million. These rates show a decline from the high rates reached in the previous year, the fall occurring at each age distinguished in Table XXXVIII, except at ages over 25 for females. At ages under 5 the rates are still in excess of those attained in the 1915–17 epidemic by 42 per cent. for males and 25 per cent. for females.

Table XXXVIII.—Cerebro-spinal Fever, 1911–32: Mortality at Various Ages per Million Living and per cent. of that in 1915–17.

Year.	Males.					Females.				
	All Ages.*	0–5	5–15	15–25	25 and up*	All Ages*	0–5	5–15	15–25	25 and up*
	Mortality rate per million.									
1915–17†	69·8	148·2	45·3	135·3	35·2	31·6	122·7	38·5	24·8	10·5
1931	54·8	219·3	51·3	54·1	17·5	37·3	172·9	45·9	17·4	9·3
1932	46·5	210·2	38·1	42·5	13·6	31·9	153·4	31·6	16·3	9·5
	Mortality rate per cent. of that in 1915·17.†									
1911–14†	17	43	26	4	5	31	45	24	16	14
1915–17†	100	100	100	100	100	100	100	100	100	100
1918	55	57	54	59	48	55	56	63	49	46
1919	39	64	49	28	24	51	56	52	46	39
1920	27	60	47	10	9	46	56	39	51	25
1921	21	52	28	5	11	36	50	28	28	21
1922	18	44	25	7	5	32	49	23	20	9
1923	13	31	19	3	6	27	32	27	29	11
1924	15	34	21	6	6	24	31	21	16	15
1925	18	44	29	6	4	29	39	26	19	14
1926	19	50	27	5	5	30	45	14	24	19
1927	24	63	30	6	8	34	44	37	19	18
1928	23	60	28	6	10	39	54	30	27	22
1929	33	83	38	14	11	50	71	45	27	18
1930	34	76	52	13	15	58	86	46	25	27
1931	78	148	113	40	50	118	141	126	70	89
1932	67	142	80	31	39	101	125	87	66	90

* Standardized. † The rates used for 1911–14 and 1915–17 are mean annual rates for those years.

Notifications in 1932 numbered 2,136 (Table 28), this having been exceeded only in 1915, 1917 and 1931. The numbers in the preceding 5 years were 472, 413, 667, 674, 2216. The fatality ratio, 57 per 100 cases, is below that in recent years, the ratios in the 5 years preceding 1932 being 91, 106, 88, 94 and 65. In times of high prevalence, when attention is directed to the disease, notification statistics probably furnish a more complete record of the total number of cases which occurred than at other times.

Prevalence was greatest in the spring with a maximum in April (Table 27), mortality being greatest also in April (Table 23).

The mortality distribution manifested in 1932 a higher rate in the towns than the rural districts, and in London than in the outer ring. Table XXXVI also shows that, as in the preceding year, both mortality and prevalence increased in general from South to North and from West to East, mortality being highest in North I, followed by North III and Midland II, lowest in Wales II and lower in the

South-West than the South-East. The fatality ratio of deaths to notified cases was lowest in the three regions with greatest prevalence and mortality, and highest where the disease was least prevalent, which again suggests that notification is more complete during local epidemics.

The area most affected in the recent exacerbation of cerebro-spinal fever has comprised the counties of the West Riding of Yorkshire, Durham, Derby and Nottingham. In the first of these counties the increase was evident in 1930, the numbers of cases notified in the Administrative County of Yorkshire, West Riding, for each year from 1927 to 1932 being successively 11, 8, 18, 117, 609, 351.

Table XXXIX compares the mortality at several ages in the area most affected with that in the adjoining area of Lancashire and Cheshire, in London and in the rest of England and Wales, and shows the numbers of deaths in each year 1930 to 1932. Deaths at ages under 15 increased from 1930 to 1931 fourfold in the most affected area, by 68 per cent. in North IV, 30 per cent. in London and 17 per cent. elsewhere, whilst at ages over 15 the increases were six fold, three fold, three fold and two fold respectively.

Table XXXIX.—Cerebro-spinal Fever. Deaths and Death Rates per Million in certain Areas of England and Wales, 1930–1932.

		Persons 0–5 years.	Persons 5–15 years.	Males 15–25 years.	Females 15–25 years.	Males 25 and upwards.	Females 25 and upwards.
Durham, Derby, Nottingham and West Riding.*	Deaths in 1930 ..	69	37	19	6	15	4
	„ 1931 ..	253	187	79	31	96	48
	„ 1932 ..	186	107	56	24	56	49
	Rate per million, 1930–2	329	98	93	36	32	18
North IV (Lancashire and Cheshire).	Deaths in 1930 ..	56	16	2	2	6	3
	„ 1931 ..	92	29	12	10	12	10
	„ 1932 ..	90	26	13	5	15	6
	Rate per million, 1930–2	175	24	17	10	7	3
London Admin. County.	Deaths in 1930 ..	59	11	6	1	5	2
	„ 1931 ..	73	18	7	3	15	15
	„ 1932 ..	77	17	16	5	19	14
	Rate per million, 1930–2	236	24	25	7	11	7
Rest of England and Wales.	Deaths in 1930 ..	149	68	33	13	26	24
	„ 1931 ..	172	83	86	17	54	38
	„ 1932 ..	188	71	58	22	50	43
	Rate per million, 1930–2	98	20	30	8	7	5
England and Wales	Rate per million, 1930–2	163	34	38	13	11	7

* With York C.B.

The mean death rates for 1930–32 show that in the most affected area mortality has been enhanced for adults and children to much the same extent, whilst in London and North IV it is only the rates of childhood which manifest any considerable excess over the rest of England and Wales.

23–32. **Tuberculosis.**—The deaths assigned to tuberculous affections in the aggregate numbered 33,658—18,743 of males and 14,915 of females—2,160 less than those so classified in the previous year.

The standardized death-rate resulting from these figures, 815 per million persons (males 913, females 726), is the lowest yet recorded (Table 9), and is 54 per million below the previous lowest rate in 1931, the male rate being 63 per million lower and the female rate 45 per million lower than in that year.

Table XL.—Mortality from Tuberculosis (All Forms) per Million Population, 1912–14, 1930, 1931 and 1932.

	Males.				Females.				Persons.			
	1912–14	1930	1931	1932	1912–14	1930	1931	1932	1912–14	1930	1931	1932
All Ages { Crude	1,571	1,037	1,041	972	1,169	770	762	713	1,364	898	896	837
All Ages { Standardized	1,542	974	976	913	1,174	781	771	726	1,349	872	869	815
0–	2,081	818	827	836	1,717	685	680	668	1,900	752	754	753
5–	572	270	276	239	580	302	250	247	576	286	263	243
10–	447	224	216	216	687	350	328	279	568	286	272	247
15–	939	777	788	726	1,226	1,157	1,143	1,074	1,084	967	966	900
20–	1,501	1,165	1,235	1,199	1,381	1,361	1,349	1,340	1,439	1,263	1,294	1,271
25–	1,816	1,240	1,212	1,124	1,403	1,154	1,129	1.033	1,599	1,195	1,169	1,077
35–	2,189	1,402	1,437	1,270	1,374	793	824	751	1,767	1,070	1,106	990
45–	2,384	1,667	1,626	1,493	1,185	616	619	575	1,762	1,104	1,089	1,002
55–	2,213	1,341	1,363	1,305	967	528	528	502	1,553	913	924	882
65–	1,378	931	854	822	752	418	437	400	1,031	649	623	588
75 and up ..	586	389	360	352	440	284	290	282	498	325	317	309

The decline, as shown in Table XL, has been arrested since 1930 at ages 0–5 and no improvement over the previous year occurred in 1932 for males aged 10–15, but in all other groups the fall in mortality was maintained in 1932.

In order to give a somewhat longer range view of the reduction of tuberculosis mortality as it affects individuals of varying sex and age, Table XLI is continued from previous Reviews.

Table XLI.—Mortality from Tuberculosis in 1932, per cent. of that in 1912–14.

	Males..	Females.	Persons.
All Ages { Crude	62	61	61
All Ages { Standardized.	59	62	60
0–	40	39	40
5–	42	43	42
10–	48	41	43
15–	77	88	83
20–	80	97	88
25–	62	74	67
35–	58	55	56
45–	63	49	57
55–	59	52	57
65–	60	53	57
75 and up	60	64	62

In this table the mortality of the year under review is compared at each age with the rates for 1912–14, after which war and influenza brought about a temporary increase. The fall is seen to be slightly increased on standardization, from 39 to 40 per cent. for persons of both sexes, a trifling decrease (39 to 38 per cent.) for females being more than counterbalanced by an increase from 38 to 41 per cent. for males. Reduction is greatest and almost equal for the sexes in childhood and least in youth.

The minimum decline for each sex occurs at the age-group 20–25, the female rate at this age having fallen below the 1912–14 standard for the first time in 1930. At ages 15–35 the decline for males is greatly in excess of that for females.

After 25 the rate of decline again increases, and at ages 35–75 exceeds 40 per cent. for the sexes jointly. At these ages female rates have shown the greater improvement.

It was pointed out in the Review for 1931 (p. 50) that the tuberculosis death-rate of young adult females has not declined in recent years to any appreciable extent, the rate at ages 20–25 being actually higher, 1,399 per million, in 1929–31 than in 1912–14. In 1932 a fall to 1,340 was registered, bringing the triennial rate for 1930–32 about 2 per cent. below the level of 18 years previously.

A similar failure of young adult females to participate in the improvement in tuberculosis mortality of the last twenty years is evident in some other countries. For the female population of urban areas the explanation may lie partly in the postponement for increasing numbers, by improved hygiene in childhood, of the establishment of a satisfactory immunity to tuberculous infection, so that it takes a larger toll at the period of greatest biological stress. Increased employment of young women in clerical and commercial occupations probably tends to enhance this stress, though on the other hand a lower birth-rate should have diminished it.

Table XLII compares the death-rate from respiratory tuberculosis at ages 15–25 and 25–45 for each sex in 1930–32 with that twenty years earlier (1911) in London, the county boroughs as they existed in 1911, and the administrative counties (including any county boroughs created since 1911). These have been grouped according to the mean density of persons per room in the town or county concerned at the 1931 census.

For males aged 15–25 the 1930–32 death-rate per million increases progressively with the density per room from 825 in the best housed group of towns to 1,807 in the worst housed group, and from 632 to 1,059 for the counties. For females aged 15–25 the increases are of the same order, from 912 to 1,968 in the towns and from 915 to 1,473 in the counties. At 25–45 the rate of increase with crowding is not so great for either sex in the towns as at the earlier age, in fact for males it is scarcely evident at all. The London death-rates are closely akin to those of the county boroughs having a mean density per

room between ·70 and ·85, and are considerably below those to be expected from its density of ·98.

Table XLII.—Tuberculosis, Respiratory. Mortality at certain Ages in 1930–32, per million living and per cent. of that in 1911, in areas grouped according to Density of Population per room in 1931.

	London.	County boroughs (as in 1911).						Administrative Counties.					England and Wales.
Mean density (persons per room) of town or county in 1931.	·98	·55–	·70–	·85–	1·00–	1·15–	All densities.	·55–	·70–	·85–	1·00–	All densities.	All densities.
Death rate per million living in 1930–32.													
Males :													
Ages 15–25	889	825	871	1,089	1,147	1,807	1,039	632	655	740	1,059	693	824
,, 25–45	1,376	1,416	1,378	1,450	1,533	1,685	1,443	1,095	988	915	1,086	994	1,116
Females :													
Ages 15–25	1,066	912	1,066	1,323	1,428	1,968	1,251	915	891	1,242	1,473	983	1,081
,, 25–45	837	909	954	1,001	1,088	1,439	1,003	870	769	882	1,021	812	876
Rate in 1930–32 per cent. of rate in 1911 in same areas.													
Males :													
Ages 15–25	77	64	74	84	89	135	82	56	68	86	111	72	76
,, 25–45	52	61	60	59	79	70	62	59	64	71	71	65	58
Females :													
Ages 15–25	116	76	85	100	113	170	97	74	85	115	121	91	96
,, 25–45	57	64	64	64	68	68	65	66	66	64	68	65	64

When the rates are expressed as percentages of the corresponding rates in the same areas in 1911, it becomes evident that the failure of the young adult rates to improve since 1911 is confined to those towns and counties having high rates of crowding in 1931. Thus figures of 100 or upwards, indicating no improvement, only appear in the table for males aged 15–25 in towns with over 1·15 persons per room and counties with over 1 per room, and for females aged 15–25 in London and in towns and counties with over ·85 persons per room.

Grouping together areas with over 1 per room average density, phthisis mortality of females aged 15–25 has increased since 1911 by 25 per cent. in the county boroughs and 21 per cent. in the counties, whilst in London with a mean density about 1 per room it has increased by 16 per cent. At densities of ·85–1 per room the towns show no change and the counties an increase of 15 per cent but at densities below ·85 per room both show improvement of the order of 20 per cent. On the other hand, at ages 25–45 the fall in mortality has not been confined to the better housed areas, but has occurred almost irrespective of density.

The 27,627 deaths from respiratory tubercle form 82 per cent. of the total allocated to tuberculosis, and 5·7 per cent. of those from all causes.

The distribution of this mortality by regions and by class of area as well as by sex and age is shown in Table XLIII.

Table XLIII.—Tuberculosis of Respiratory System: Mortality per 100,000 Living at different Ages in different Areas, 1932.

	England and Wales.	Greater London.	London Administrative County.	South-East excluding Greater London.	North.	Midland.	East.	South-West.	Wales.	County Boroughs outside Greater London.	Other Urban Districts outside Greater London.	Rural Districts outside Greater London.
MALES.												
All Ages—												
Crude ..	81	90	108	72	85	75	64	66	84	102	70	54
Standardized..	72	78	93	64	76	67	59	59	78	91	63	49
0— ..	10	13	14	7	12	11	3	3	5	13	8	5
5— ..	6	5	7	3	7	4	8	4	8	7	6	4
15— ..	80	77	87	61	92	72	72	59	106	103	75	52
25— ..	102	109	125	101	101	96	85	97	118	122	90	81
35— ..	119	121	145	127	119	111	112	118	119	147	108	85
45— ..	142	158	196	122	157	143	91	96	127	191	118	82
55— ..	122	159	193	94	130	113	78	92	121	159	94	72
65— ..	74	99	133	60	79	65	61	59	61	90	59	53
75 & up ..	27	57	76	13	17	25	38	15	29	23	14	25
FEMALES.												
All Ages—												
Crude ..	58	54	59	49	60	58	58	53	77	68	55	49
Standardized	56	51	54	47	60	56	59	52	78	66	54	49
0— ..	9	11	15	5	10	9	4	3	6	12	6	4
5— ..	10	7	9	5	15	11	7	6	13	13	11	8
15— ..	107	95	102	82	120	102	105	98	156	125	106	90
25— ..	95	81	84	90	95	94	115	95	141	110	91	88
35— ..	68	62	62	65	70	65	76	69	91	75	66	66
45— ..	51	50	59	43	47	66	46	36	70	62	44	43
55— ..	43	42	47	37	45	45	41	43	47	51	39	37
65— ..	32	36	41	34	28	27	42	41	33	34	30	29
75 & up ..	19	25	24	20	12	16	18	26	19	19	19	13

The relation of phthisis mortality to urbanization is manifested by the decline of the standardized rate for males from 91 per 100,000 in the county boroughs outside Greater London and 93 in London itself, to 49 in the rural districts. For females the effect of urbanization is not so great, the rates being 66 in the county boroughs, 54 in London, and 49 in the rural districts.

Table XLIV indicates that the phthisis death-rates at ages 15–25 are more sensitive to overcrowding in urban than rural areas, increasing with density per room in the county boroughs from 825 to 1,807 per million for males and from 912 to 1,968 for females, and in the small towns from 726 to 1,169 for males and 856 to 1,637 for females. In the rural districts density scarcely affects the rate, except in the very densely housed Durham aggregate which comprises the last group.

At ages 25–45 no effect is evident for males unless the crowding rate exceeds 1 per room, and for females the association with housing

density in the towns is not nearly so pronounced as at the earlier age.

Table XLIV.—Tuberculosis, Respiratory : Mortality of Young Adults per million living, 1930–32, in County Boroughs and County aggregates grouped according to their mean Density of Persons per room.

		·55– per Room.	·70– per Room.	·85– per Room.	1·00– per Room.	1·15– per Room.	All Densities.
Males 15–25	London Administrative County	—	—	—	—	—	889
	County Boroughs	825	864	1,071	1,131	1,807	1,025
	Other Urban Districts	726	710	826	1,169	—	761
	Rural Districts	564	533	548	—	986	566
	England and Wales	—	—	—	—	—	824
Males 25–45	London Administrative County	—	—	—	—	—	1,376
	County Boroughs	1,416	1,381	1,434	1,511	1,685	1,433
	Other Urban Districts	1,289	1,029	985	1,156	—	1,050
	Rural Districts	924	861	680	—	968	864
	England and Wales	—	—	—	—	—	1,116
Females 15–25	London Administrative County	—	—	—	—	—	1,066
	County Boroughs	912	1,046	1,314	1,442	1,968	1,241
	Other Urban Districts	856	910	1,302	1,637	—	1,009
	Rural Districts	904	895	951	—	1,254	920
	England and Wales	—	—	—	—	—	1,081
Females 25–45	London Administrative County	—	—	—	—	—	837
	County Boroughs	909	950	998	1,077	1,439	999
	Other Urban Districts	805	761	921	984	—	804
	Rural Districts	796	806	774	—	1,133	817
	England and Wales	—	—	—	—	—	876

The regional distribution outside Greater London (Table XLIII) indicates that for each sex the standardized rate is highest in Wales and also above average in the North. For males this rate is lowest in the East and South West and for females in the South East. In England the regional range is only 59 to 76 for males and 47 to 60 for females. The Welsh rates are below the general average for children under 5, and for males aged 45–75. The favourable position of the South East excluding Greater London is manifest for all the sex and age groups except 35–45 for males and over 65 for females.

Amongst counties of over 100,000 population the lowest rates were those of Wiltshire, 403; Yorkshire, East Riding, 429; Derbyshire, 441; Yorkshire, North Riding, 447; Sussex, East, 466; and Buckinghamshire, 483.

The highest county borough rates were those for South Shields, 1,447; Gateshead, 1,249; Middlesbrough, 1,216; and Liverpool, 1,128. The Doncaster rate, 355, was lowest.

The standardized death-rate from tuberculosis of the intestines and peritoneum declined further (Table 8) for females to a new low record of 27 per million, or half the rate of ten years previously. For males the rate of 32 was slightly higher than the lowest rate of 1931 (31). The standardized rates for tuberculosis of the nervous system, which had shown no tendency to decline since 1928, fell again in 1932, the female rate being the lowest yet recorded.

The rapidity with which non-respiratory tuberculosis mortality in general continues to fall may be gathered from the fact that during the eleven years covered by this table the standardized rate for each sex has fallen without interruption, from 278 to 195 for males, or by 30 per cent., and from 240 to 164 for females, or by 32 per cent., the percentage decline for the respiratory form of the disease in the same period being 25 for males and 25 for females. The proportion of non-respiratory to total (standardized) mortality was 23 per cent. in 1922 and 22 in 1932.

The distribution of non-respiratory tuberculosis mortality at ages 0–5, 5–15, and 15–25 is depicted in Table XLV for each class

Table XLV.—Non-pulmonary Tuberculosis : Mortality per 100,000 living at certain Ages by Region and Class of Area, 1930–32.

		England and Wales.	South-East.	North I.	North II.	North III.	North IV.	Midland I.	Midland II.	East.	South-West.	Wales I.	Wales II.
Persons Ages 0–5	London	52	—	—	—	—	—	—	—	—	—	—	—
	County Boroughs	78	66	114	98	79	83	60	72	101	72	55	—
	Other Urban Districts	65	55	110	84	80	63	71	69	72	55	53	43
	Rural Districts	51	53	68	32	95	62	44	41	54	37	41	42
Persons Ages 5–15	London	16	—	—	—	—	—	—	—	—	—	—	—
	County Boroughs	22	16	44	30	21	21	15	26	25	18	22	—
	Other Urban Districts	16	12	27	27	17	15	16	16	18	15	21	21
	Rural Districts	15	11	28	17	18	13	11	15	12	14	13	20
Males Ages 15–25	London	15	—	—	—	—	—	—	—	—	—	—	—
	County Boroughs'	18	12	38	20	18	17	13	16	10	14	31	—
	Other Urban Districts	17	12	42	16	19	15	12	14	15	12	33	26
	Rural Districts	15	10	21	14	22	14	16	14	14	14	20	25
Females Ages 15–25	London	10	—	—	—	—	—	—	—	—	—	—	—
	County Boroughs	16	11	40	16	18	16	11	13	9	17	17	—
	Other Urban Districts	15	11	29	17	17	15	13	15	12	11	28	14
	Rural Districts	14	9	32	8	17	7	17	8	16	13	19	29

of area within each region in the triennium 1930–32. The rates for London compare favourably with those for other towns, and for young adult females the London rate is below that for all rural districts. The effect of urbanization is greater in children than young adults. At ages under 5 the county borough rates are highest in North I, followed by the East and North II, and lowest in Wales I; the rates for small towns are highest in North I, followed by North II and III, and lowest in Wales II; for rural areas they are highest in North III and lowest in North II and the South West.

At the school ages North I and II give highest rates in the large and small towns, and North I and Wales II in the rural areas. For young adult males Wales II has the highest rate in the rural areas, whilst in the towns the Welsh rates are only surpassed by North I. For young adult females North I gives the highest rates for each class of area, being followed by Wales I in the small towns and Wales II in the rural areas.

44 (1 and 2). **Vaccinia and deaths following Vaccination.**—One death was assigned to the heading of vaccinia in 1932, a female aged 6 months, death being attributed to enteritis and cephalitis of

infective origin following vaccination but not necessarily connected therewith. No deaths were classed to " other sequelæ of vaccination " (No. 44 : 2). Two infant deaths, in the causation of which vaccination was mentioned as a contributory but unimportant factor, were classed to their respective causes.

45–53. **Cancer.**—The deaths ascribed to cancer during 1932 numbered 60,716—28,829 of males and 31,887 of females. For both sexes these numbers are the highest yet recorded.

Of these deaths 52,293 were referred to carcinoma, 2,762 to sarcoma, and 5,661 to " cancer " not otherwise defined. These are the largest numbers yet recorded for total cancer and for carcinoma, but not for sarcoma, which of late years has accounted for a somewhat smaller proportion of the total cancer deaths than heretofore. Its ratio of 45 per 1,000 total cancer deaths is the same as in 1931, the lowest proportion yet returned.

The standardized death-rate for males in 1932 amounts to 1,048 per million, and that for females to 965. In 1928 the increase in female mortality was arrested, the rate having shown a small decrease in each year since. Table XLI,* in the 1927 volume, shows that the standardized rate for males first exceeded that for females in 1924, and since that date the excess has been maintained and has increased, reaching 83 per million in 1932. The crude death-rate is seen from Table 7 to be still in excess for females, to the extent of 29 per million living in 1932, compared with 119 ten years earlier. But this is due to the greater age of the female population, and when this is allowed for by standardization, Table 8 shows the rate for males as constantly in excess during 1924–32.

For sarcoma the crude rate was 71 per million in 1928 and 1929, 68 in 1930, 66 in 1931, and 69 in 1932. When standardized there is a considerable male excess, the rate being 65·0 for males and 44·9 for females in 1932.

The mortality from cancer as a whole is compared by sex and age in Table XLVI for England and Wales, with record of the degree of difference in sex mortality at the various ages.

From 25 years, at which age mortality begins to be significant, up to 55 the female exceeds the male rate, but from 55 years to the end of life the male rates are in excess, the maximum divergence occurring at 65–75 years. This female excess in middle age, greatest at 35–45, is associated with, and largely explained by, the special frequency at this age of cancer of the uterus and of the female breast, which together account for a larger proportion of the total deaths of women from cancer at each age between 25 and 65 than at all ages jointly (*see* " Text " Volume of the Review for 1929, page 57).

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* This table gives standardized death-rates from Cancer by Sex for each year 1851–1927.

Table XLVI.—Mortality from Cancer (All Sites), 1932.

	Mortality per Million.			Sex Ratio.		
	Males.	Females.	Persons.	Males.	Females.	Persons.
All Ages { Crude ..	1,495	1,524	1,510	990	1,009	1,000
All Ages { Standardized	1,048	965	999	1,049	966	1,000
0—	37	40	38	974	1,053	1,000
5—	25	15	20	1,250	750	1,000
15—	48	37	43	1,116	860	1,000
25—	117	159	139	842	1,144	1,000
35—	423	729	588	719	1,240	1,000
45—	1,567	2,102	1,853	846	1,134	1,000
55—	4,803	4,086	4,425	1,085	923	1,000
65—	10,291	7,396	8,689	1,184	851	1,000
75—	14,041	11,719	12,622	1,112	928	1,000

The percentage share of the breast and uterus in the total cancer mortality of females, in 1932, was :—

All ages	0–	25–	35–	45–	55–	65–	75–	85–
33·6	1·3	35·6	53·2	47·5	36·4	25·2	23·3	28·0

The rates per million males and females from cancer of sites other than the breast and genital organs compare as follows :—

	All Ages (Standardized)	0–	25–	35–	45–	55–	65–	75–	85–
Males	972	35	105	401	1,511	4,568	9,409	12,518	11,801
Females	576	25	88	290	934	2,377	5,204	8,438	9,126
Male excess (per cent.)	69	40	19	38	62	92	81	48	29

Thus mortality from sites other than those associated with reproduction was higher for males than for females at every age, the excess reaching a maximum of 92 per cent. at age 55–65 years.

The mortality attributed to sarcoma, carcinoma and cancer undefined is distinguished in Table XLVII, other details of the deaths being shown in Tables XLIX and L. The rates for cancer undefined are lower than the average of the four preceding years at every age, except for males aged 15–25 and females aged 25–35 indicating increased precision in the statement of the type of cancer. Sarcoma rates are lower than in 1928–31 at each age over 35 for males, and at 35–45 and 65 and over for females. Carcinoma rates show a decline at 45–55 for males and at 35–45 and 65 and upwards for females. The most noteworthy increase in the last few years has been for carcinoma in males aged 55 and upwards.

Table XLVII also shows the trend of cancer mortality by sex and age since 1901–10.

The crude death-rate at all ages for males in 1932 is 93 per cent. and the female rate 48 per cent. higher than the respective rates

Table XLVII.—Cancer Mortality in 1911–20, 1921–30, 1931 and 1932 per cent. of that in 1901–10. Sarcoma, Carcinoma and Undefined; rates per million in 1928–31 and 1932.

—	Mortality per cent. of the rate in 1901–10.*				Mortality per million living.					
					Sarcoma.		Carcinoma.		Cancer undefined.	
	1911–20	1921–30	1931	1932	1928–31	1932	1928–31	1932	1928–31	1932
MALES.										
All ages—										
Crude.. ..	128	167	188	193	81	80	1,168	1,274	157	142
Standardized..	114	128	132	134	67	65	851	884	115	99
0–	96	100	100	121	21	26	2	2	1	1
15–	107	112	115	120	33	33	12	13	2	3
25–	101	106	107	106	37	37	71	73	10	6
35–	103	101	102	102	70	64	323	329	37	31
45–	108	105	106	101	131	123	1,325	1,317	162	131
55–	114	121	119	123	218	203	3,905	4,174	511	444
65–	120	143	153	155	298	281	8,585	8,976	1,190	1,076
75 and up. ..	124	162	173	179	319	293	11,832	12,382	1,712	1,431
FEMALES.										
All ages—										
Crude.. ..	114	135	148	148	58	59	1,269	1,326	164	140
Standardized..	102	105	103	103	45	45	837	833	108	87
0–	100	111	95	121	19	19	2	3	1	1
15–	103	106	109	112	20	21	14	14	2	2
25–	92	94	89	94	25	25	121	122	11	13
35–	93	90	87	86	43	39	640	635	71	56
45–	98	92	92	90	86	92	1,807	1,833	211	173
55–	99	96	93	93	141	154	3,521	3,557	455	376
65–	107	116	114	112	195	167	6,726	6,528	913	738
75 and up. ..	116	143	149	148	244	205	10,416	10,365	1,469	1,119

* The rates per 100,000 at 1901–10, 1911–20, 1921–30 and 1931 were given in Table XLII of the Review for 1931. The percentage ratios in this table are based upon rates per million, that is to say, upon an additional significant figure, and therefore differ slightly from those given in previous years.

in 1901–10, but if standardized rates are compared these excesses are reduced to 34 and 3 per cent. respectively. These great differences in the rate of increase as shown by comparing crude and standardized rates emphasise the desirability of restricting comparison to the latter rates which take into account the rapidly increasing proportion of elderly persons in the population and attempt to correct the exaggerated impression conveyed when crude rates are compared.

The trend of the sex death-rates at the several age-groups are widely different. The rates for each sex at ages over 75 increased progressively from 1901–10 to 1931, more rapidly for males than females, but in 1932 the female rate slightly declined. At 65–75 there has also been a progressive increase for males, but for females this has given place to a decline since 1929. At 55–65 the male rates have increased since 1931, but at 45–55 have declined, being only 1 per cent. above the 1901–10 level. The female rates at each age group from 25 to 65 have declined since 1901–10, the extent of this fall amounting to 14 per cent. at ages 35–45, 10 per cent. at 45–55 and 7 per cent. at 55–65.

Cancer mortality is analysed according to sex, age, region and class of area in Table XLVIII. The standardized rate for each sex declines, as noticed in previous years, from a maximum in the county boroughs to a minimum in the rural districts, the range

Table XLVIII.—Cancer (All Sites) : Mortality per 100,000 Living in different Areas and at different Ages, 1932.

	England and Wales.	Greater London.	London Admin. County.	South East, excluding Greater London.	North.	Midland.	East.	South-West.	Wales.	County Boroughs outside Greater London.	Other Urban Districts outside Greater London.	Rural Districts outside Greater London.
MALES.												
All Ages—												
Crude	150	152	171	157	148	140	166	176	131	154	147	145
Standardized ..	105	113	122	96	110	101	98	101	95	114	101	90
0– ..	4	6	5	4	3	2	4	6	3	3	3	4
5– ..	3	3	3	1	2	3	3	4	2	3	2	2
15– ..	5	6	6	5	4	5	2	2	6	5	5	3
25– ..	12	13	14	10	14	10	12	8	7	14	9	10
35– ..	42	48	48	34	43	43	27	40	49	45	40	34
45– ..	157	174	194	127	163	150	150	159	152	171	145	132
55– ..	480	513	573	448	505	477	431	429	414	535	436	387
65– ..	1,029	1,064	1,134	926	1,107	1,007	970	1,019	935	1,137	1,018	886
75 and up ..	1,404	1,559	1,685	1,439	1,400	1,243	1,469	1,420	1,215	1,410	1,366	1,337
FEMALES.												
All Ages—												
Crude	152	147	153	168	148	144	170	178	146	151	155	157
Standardized ..	97	95	97	91	101	96	94	90	102	101	96	92
0– ..	4	7	10	4	2	5	6	4	4	4	2	4
5– ..	2	2	2	1	2	1	2	1	2	1	2	1
15– ..	4	5	6	3	3	5	3	4	4	3	4	3
25– ..	16	15	17	12	18	17	12	16	17	18	14	16
35– ..	73	73	78	70	78	70	64	56	81	77	76	61
45– ..	210	209	209	197	223	206	187	205	210	223	206	197
55– ..	409	402	401	394	417	418	403	378	436	431	403	388
65– ..	740	711	724	663	784	751	767	699	820	766	741	728
75 and up ..	1,172	1,156	1,154	1,194	1,240	1,083	1,189	1,137	1,140	1,170	1,203	1,149

according to urbanization, as thus measured, being greater for males, 114 to 90, than for females, 101 to 92. The London rate for males (122) is in excess of that for the county boroughs, but for females it is now lower at all ages (standardized) and at 25–35 and over 45.

These relations suggest that cancer may be more often certified in the towns because hospital and other facilities for its recognition are there greatest, but successful treatment, particularly of cancer of the breast and uterus, in so far as it reduces mortality, tends to affect the rates in the opposite sense.

Apart from Greater London, the North gives the highest standardized mortality for males and Wales for females, whilst Wales shows the lowest rate for males and the South-West for females. The regional dispersion thus indicated is greater for males, 95–110, than for females, 90–101.

Cancer by Site.—The parts of the body affected by fatal cancer in 1932 are shown in Tables XLIX and L in greater detail than that provided by the international classification, six out of its nine headings (Nos. 45–53) being sub-divided. Fuller details with regard to cancer of the uterus and of the skin than those shown in

Table XLIX.—Sites and Forms of Fatal Cancer, by Sex and Age, 1932.

		All Ages.	0–	5–	15–	25–	35–	40–	45–	50–	55–	60–	65–	70–	75–	80–	85–
		DEATHS OF MALES.															
	All Sites	28,829	56	83	163	387	387	687	1,322	2,288	3,765	4,922	5,320	4,302	2,982	1,250	431
	Carcinoma	24,554	2	7	43	232	290	543	1,082	1,942	3,227	4,295	4,638	4,160	2,624	1,088	381
	Sarcoma	1,533	50	74	110	117	75	87	125	158	187	178	153	122	65	21	11
	Cancer N.S.	2,742	4	2	10	18	22	57	115	186	351	449	535	520	293	141	39
45	Lip	277	—	—	—	1	1	—	6	14	16	36	40	50	61	39	13
	Tongue	1,069	—	—	—	1	4	5	32	73	155	236	228	185	102	38	10
	Mouth	309	—	—	—	—	—	1	8	23	64	54	56	63	25	13	2
	Tonsil	284	—	—	7	6	3	3	7	24	41	67	57	33	24	7	5
	Jaw	460	1	3	2	3	4	7	14	30	65	94	74	89	48	18	8
	Pharynx	410	—	1	3	3	2	6	14	36	52	84	87	63	45	13	1
	Others (1)	231	—	1	—	2	1	3	4	21	31	45	44	43	22	9	5
	Total	3,040	1	5	12	16	15	25	85	221	424	616	586	526	327	137	44
46	Œsophagus	1,774	—	—	1	5	7	18	51	125	289	372	365	315	149	57	20
	Stomach	6,457	—	—	6	62	91	189	365	596	940	1,159	1,184	986	591	221	67
	Small intestine	108	1	—	1	3	1	—	6	12	16	15	17	13	18	4	1
	Cæcum	258	—	—	3	1	2	10	14	18	25	47	55	43	26	10	4
	Hepatic flexure	44	—	—	—	—	—	1	3	3	6	14	5	5	6	—	1
	Splenic flexure	78	—	—	2	—	2	2	3	2	7	14	19	8	12	6	1
	Sigmoid flexure	646	—	—	2	8	6	13	25	39	77	107	122	145	68	29	5
	Large intestine (colon)	2,220	—	—	7	17	22	46	71	131	246	346	413	431	318	128	44
	Rectum (excluding anus)	3,122	—	2	8	32	29	43	115	217	365	547	630	605	323	158	48
	Liver	1,263	3	2	2	10	13	28	44	76	161	195	259	236	147	67	20
	Gall bladder	297	—	—	1	—	3	4	6	12	26	60	57	42	56	24	6
	Pancreas	884	—	3	3	4	9	33	45	76	112	161	175	151	70	29	13
	Others (2)	552	8	3	3	10	9	14	26	45	50	71	98	106	58	36	17
	Total	17,703	12	10	39	152	194	401	774	1,352	2,320	3,108	3,397	3,086	1,842	769	247
47	Larynx	873	—	1	—	3	4	15	34	89	136	193	167	123	80	25	3
	Lung	1,553	—	—	9	49	65	88	177	230	297	261	188	130	45	10	4
	Others (3)	262	1	1	4	6	9	12	25	32	44	35	53	22	10	7	1
	Total	2,688	1	2	13	58	78	115	236	351	477	489	408	275	135	42	8
50	Breast	49	—	—	—	—	—	1	2	7	5	11	3	8	7	3	2
51	Kidney, suprarenal	347	24	9	1	8	8	20	27	38	55	47	56	29	20	5	—
	Bladder, urethra, ureter	900	—	—	—	3	4	17	48	62	106	144	170	170	115	44	17
	Prostate	1,623	—	1	1	2	3	5	14	50	102	227	368	393	300	115	42
	Testis	151	2	—	12	32	16	22	11	12	8	6	10	11	4	2	3
	Penis	161	—	—	—	3	1	6	9	15	22	12	30	23	26	11	3
	Scrotum	77	1	—	—	—	1	2	2	7	16	15	14	8	8	2	1
	Total	3,259	27	10	14	48	33	72	111	184	309	451	648	634	473	179	66
52	Skin	630	1	—	2	14	15	15	15	28	35	59	100	111	107	82	46
53	Brain, Meninges	120	3	10	5	10	13	11	14	25	17	5	6	—	—	1	—
	Thyroid	80	—	1	—	1	3	2	6	11	17	8	12	7	10	2	—
	Bones (jaw excepted)	397	4	18	44	28	14	15	29	34	43	51	45	40	19	9	4
	Others (4) and unspecified	863	7	27	34	40	22	30	50	73	118	124	121	115	62	26	14
	Total	1,460	14	56	83	79	52	58	99	143	195	188	184	162	91	38	18

(1) Includes Palate, Cheek (internal surface), Salivary Glands, Gums.
(2) „ Intestine undefined, Peritoneum, Omentum, Mesentery, etc.
(3) „ Mediastinum.
(4) „ Lymphatic Glands, Abdomen, Eye, Muscle, etc.

Table XLIX.—*cont.*

		All Ages.	0–	5–	15–	25–	35–	40–	45–	50–	55–	60–	65–	70–	75–	80–	85–
		DEATHS OF FEMALES.															
	All Sites	31,887	58	49	127	540	787	1,390	2,363	3,203	3,824	4,423	4,602	4,412	3,335	1,887	887
	Carcinoma	27,739	6	6	49	412	681	1,214	2,059	2,802	3,329	3,848	4,023	3,893	2,940	1,682	795
	Sarcoma	1,229	49	42	72	84	50	66	105	140	184	147	110	93	62	29	16
	Cancer, N.S.	2,919	3	1	6	44	58	110	199	261	331	428	469	426	333	176	76
45	Lip	22	—	—	1	1	—	—	1	—	—	—	1	7	5	2	4
	Tongue	116	—	—	—	4	2	1	6	10	18	18	16	17	13	5	6
	Mouth	32	—	—	—	—	—	3	—	3	4	5	1	5	6	3	2
	Tonsil	44	—	—	3	—	—	5	7	5	3	8	6	2	3	2	—
	Jaw	171	2	1	1	2	4	5	7	17	13	28	29	23	27	9	3
	Pharynx	108	1	—	2	2	3	6	14	8	16	13	16	14	8	4	1
	Others (1)	43	—	—	—	—	1	1	1	4	8	5	7	4	3	8	1
	Total	536	3	1	7	9	10	21	36	47	62	77	76	72	65	33	17
46	Œsophagus	661	—	—	1	2	3	19	41	81	83	118	94	104	62	44	9
	Stomach	5,255	1	—	9	63	93	144	223	405	541	765	922	926	682	336	145
	Small intestine	95	—	—	2	3	3	4	4	8	8	11	12	18	16	5	1
	Cæcum	362	1	—	1	2	3	3	15	32	38	38	54	71	60	27	17
	Hepatic flexure	58	—	—	—	—	—	—	2	2	3	12	12	7	11	6	3
	Splenic flexure	94	—	—	—	1	1	1	4	7	6	12	21	14	14	9	4
	Sigmoid flexure	661	—	—	3	6	11	26	34	56	87	79	104	120	76	45	14
	Large intestine (colon)	2,730	—	1	4	26	40	66	90	177	234	330	440	511	440	250	121
	Rectum (excluding anus)	2,000	—	—	10	41	31	66	97	145	224	294	313	325	257	137	60
	Liver	1,347	2	2	—	14	11	26	57	98	121	179	222	258	197	110	50
	Gall bladder	591	—	—	1	1	6	5	17	34	70	105	111	111	82	35	13
	Pancreas	791	—	—	—	7	7	22	37	55	93	133	157	124	84	56	16
	Others (2)	848	3	1	5	14	17	14	43	62	65	111	149	152	111	66	35
	Total	15,493	7	4	36	180	226	396	664	1,162	1,573	2,187	2,611	2,741	2,092	1,126	488
47	Larynx	232	—	—	—	7	5	11	31	39	38	30	29	21	11	8	2
	Lung	565	—	2	7	14	19	33	44	65	77	110	84	58	35	14	3
	Others (3)	123	1	—	2	6	6	7	5	14	18	17	17	13	12	3	2
	Total	920	1	2	9	27	30	51	80	118	133	157	130	92	58	25	7
48	Uterus	4,342	—	—	1	97	218	343	535	599	615	620	509	379	244	141	41
49	Ovary	1,329	2	5	17	47	53	84	201	200	207	167	148	111	52	29	6
	Vulva	406	1	1	2	3	9	8	22	25	24	53	66	78	55	40	19
	Others	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Total	1,735	3	6	19	50	62	92	223	225	231	220	214	189	107	69	25
50	Breast	6,386	—	—	2	95	196	401	684	828	901	862	763	617	507	323	207
52	Skin	527	3	1	4	12	6	10	22	21	46	43	47	85	84	81	62
53	Brain, meninges	96	3	6	3	14	5	9	12	11	15	7	4	3	1	—	3
	Thyroid	157	—	—	—	1	1	10	9	17	20	25	22	20	21	9	2
	Kidney, suprarenal	294	26	6	3	7	4	7	11	39	42	40	42	39	19	4	5
	Bladder, urethra, ureter	400	—	—	2	2	4	8	22	26	51	57	67	65	53	31	12
	Bones (jaw excepted)	367	2	18	28	23	13	21	20	47	44	50	34	33	16	13	5
	Others (4) and unspecified	634	10	5	13	23	12	21	45	63	91	78	83	77	68	32	13
	Total	1,948	41	35	49	70	39	76	119	203	263	257	252	237	178	89	40

(1) Includes Palate, Cheek (internal surface), Salivary Glands, Gums.
(2) „ Intestine undefined, Peritoneum, Omentum, Mesentery, etc.
(3) „ Mediastinum.
(4) „ Lymphatic Glands, Abdomen, Eye, Muscle, etc.

the Table are also available. The cancer mortality distribution is shown by sex, age and site as well as by the nature of the growth to which the deaths were attributed, under the headings carcinoma, sarcoma and "cancer" not otherwise defined. Continuing the

Table L.—Forms of Fatal Cancer of each Site, 1932.

		Males.						Females.					
		Number of Deaths.			Percentage of all Cancers.			Number of Deaths.			Percentage of all Cancers.		
		Carcinoma.	Sarcoma.	"Cancer," Not otherwise defined.	Carcinoma.	Sarcoma.	"Cancer," Not otherwise defined.	Carcinoma.	Sarcoma.	"Cancer," Not otherwise defined.	Carcinoma.	Sarcoma.	"Cancer," Not otherwise defined.
	All Sites	24,554	1,533	2,742	85	5	10	27,739	1,229	2,919	87	4	9
45	Lip	259	..	18	94	—	6	20	1	1	90	5	5
	Tongue	976	2	91	91	0	9	104	1	11	90	1	9
	Mouth	280	1	28	91	0	9	31	1	—	97	3	—
	Tonsil	230	28	26	81	10	9	31	8	5	71	18	11
	Jaw	344	78	38	75	17	8	105	53	13	61	31	8
	Pharynx	367	11	32	89	3	8	91	4	13	84	4	12
	Others	213	2	16	92	1	7	41	2	—	95	5	—
	Total	2,669	122	249	88	4	8	423	70	43	79	13	8
46	Œsophagus	1,588	1	185	90	0	10	582	—	79	88	—	12
	Stomach	5,936	8	513	92	0	8	4,847	4	404	92	0	8
	Small intestine	87	8	13	81	7	12	77	8	10	81	8	11
	Cæcum	238	3	17	92	1	7	328	3	31	90	1	9
	Hepatic flexure ..	43	—	1	98	—	2	54	—	4	93	—	7
	Splenic flexure	73	—	5	94	—	6	90	—	4	96	—	4
	Sigmoid flexure	605	—	41	94	—	6	610	1	50	92	0	8
	Large intestine (colon)	2,069	1	150	93	0	7	2,538	2	190	93	0	7
	Rectum (excluding anus)	2,890	4	228	93	0	7	1,830	2	168	92	0	8
	Liver	1,048	17	198	83	1	16	1,141	12	194	85	1	14
	Gall bladder	259	1	37	88	0	12	524	1	66	89	0	11
	Pancreas	809	5	70	91	1	8	722	2	67	92	0	8
	Others	376	64	112	68	12	20	607	53	188	72	6	22
	Total	16,021	112	1,570	90	1	9	13,950	88	1,455	90	1	9
47	Larynx	772	10	91	89	1	10	214	2	16	92	1	7
	Lung	1,256	110	187	81	7	12	444	53	68	79	9	12
	Others	132	69	61	51	26	23	62	26	35	51	21	28
	Total	2,160	189	339	80	7	13	720	81	119	78	9	13
48.	Uterus	—	—	—	—	—	—	3,910	75	357	90	2	8
49	Ovary	—	—	—	—	—	—	1,112	35	182	83	3	14
	Vulva	—	—	—	—	—	—	372	7	27	91	2	7
	Others	—	—	—	—	—	—	—	—	—	—	—	—
	Total	—	—	—	—	—	—	1,484	42	209	86	2	12
50.	Breast	43	1	5	88	2	10	5,842	37	507	91	1	8
51	Kidney, suprarenal ..	145	169	33	42	48	10	—	—	—	—	—	—
	Bladder, urethra, ureter	814	6	80	90	1	9	—	—	—	—	—	—
	Prostate	1,351	7	265	84	0	16	—	—	—	—	—	—
	Testis	75	55	21	50	36	14	—	—	—	—	—	—
	Penis	152	—	9	94	—	6	—	—	—	—	—	—
	Scrotum	70	2	5	91	3	6	—	—	—	—	—	—
	Total	2,607	239	413	80	7	13	—	—	—	—	—	—
52.	Skin	563	49	18	89	8	3	439	75	13	84	14	2
53	Brain, meninges ..	13	92	15	11	77	12	10	74	12	10	77	13
	Thyroid	77	3	—	96	4	—	150	5	2	96	3	1
	Kidney, suprarenal ..	—	—	—	—	—	—	104	156	34	35	53	12
	Bladder, urethra, ureter	—	—	—	—	—	—	347	4	49	87	1	12
	Bones (jaw excepted) ..	54	322	21	14	81	5	61	287	19	17	78	5
	Others and unspecified	347	404	112	40	47	13	299	235	100	47	37	16
	Total	491	821	148	34	56	10	971	761	216	50	39	11

practice of many years past, every practicable effort is made, with the co-operation of certifying practitioners, to assign the deaths to the organs primarily affected, in order to obtain as true indications as possible of the incidence of the disease. It is well recognized, however, that for certain organs, especially the liver and lung, commonly affected secondarily to such a degree that the symptoms dominate any that may arise from the primarily affected organ, ascertainment of the latter may prove impracticable. Such exceptions are becoming more rare, due no doubt to improvement in diagnostic methods, an encouraging sign justifying the inclusion, in the notes to certifying medical practitioners which accompanies the book of death certificates, of the request that " the seat of primary occurrence should be returned in all cases where known."

The distribution of cancers of each individual site, according to the nature of the growth is given in Table L, the corresponding tabulation of deaths for 1931 having been included in Table XLIV for that year. The percentage of cancers with nature undefined is, amongst the organs distinguished, highest for the liver, prostate, testis and ovary. The percentage of all cancers defined as sarcoma ranges from 80 for the bones, 77 for the brain, 51 for kidney or suprarenal and 36 for the testis to 1 per cent. for the digestive tract and female breast.

The facts as to cancer mortality distribution by sex, age and site contained in Table XLIX are summed up for each site in Table LI, which compares total mortality in 1932 with the rates for other recent periods for the same sex and site. In this table the tendency to increase of mortality merely in consequence of increase in the proportion of persons at risk falling within those ages at which cancer chiefly occurs, as well as the tendency to female excess for the same reason, has been allowed for by standardization, so that all the rates quoted may be compared with one another.

The chief increases in 1932, over the previous year are, for males—lung 5·8 per million, rectum and anus 4·2, pancreas 3·2, stomach 2·0, prostate 2·0, pharynx 1·7, gall bladder 1·7, and for females—skin 1·8, bones 1·6, pancreas 1·4.

The sites showing at least 25 per cent. increase in mortality from 1911–20 to 1932 are, for males, the lung (347 per cent.), prostate (120), pancreas (91), gall bladder (80), kidney and suprarenals (51), intestine (41), testis (39), pharynx (36) and larynx (28), and for females the lung (146), ovary and Fallopian tube (78), pancreas (76), gall bladder (46), and kidney and suprarenals (40). Those showing a decline are the lip, tongue, mouth, jaw, liver, and mesentery in both sexes, uterus, bones, mediastinum and rodent ulcer in females, and penis and skin in males.

The rate for cancer of the lung in males was more than five times as great in 1932 as in 1901–10, and more than twice as great in females. Whilst the magnitude of the increase in both sexes suggests that improved means of diagnosis is partly responsible, the much

greater increase for males than females requires some other explanation.

The continued increase in mortality from cancer of the prostate has been accompanied by an increasing mortality assigned to non-malignant prostatic diseases which has risen by 57 per cent. since 1922 (Table 8). The rate of increase in the standardized mortality

Table LI.—Cancer Mortality : Rates per Million Population (Standardized) for the more important Sites for each Sex 1901–10, 1911–20, 1921–30, 1928, 1929, 1930, 1931 and 1932.

Note.—The rates in this Table for the years 1931 and 1932 have been worked on revised populations and may therefore differ slightly from those published earlier.

	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
	All Sites.		Lip.		Tongue.		Mouth and Tonsil.		Jaw.	
1901–10	784	942	12·8	0·8	43·1	4·4	?	?	22·6	6·9
1911–20	897	959	12·6	0·7	50·8	4·3	23·5	3·0	25·1	7·2
1921–30	1,004	986	11·5	0·7	46·1	3·8	28·3	3·6	20·8	6·4
1928	1,032	1,000	12·3	0·7	45·5	4·2	30·5	3·5	19·6	5·5
1929	1,031	999	10·4	0·6	41·8	4·1	27·6	3·5	19·2	6·5
1930	1,031	987	11·3	0·7	40·6	3·5	29·3	3·8	16·7	5·3
1931	1,034	974	10·7	0·5	38·1	3·6	29·4	3·5	16·5	5·1
1932	1,052	966	10·3	0·6	37·6	3·4	21·2	2·4	16·6	5·2
	Pharynx.		Œsophagus.		Stomach.		Liver.		Gall-bladder.	
1901–10	?	?	51·2	14·6	167·2	133·0	?	?	?	?
1911–20	10·8	3·0	60·6	16·5	186·4	139·0	87·1	98·0	6·0	11·6
1921–30	12·6	3·0	64·2	18·1	221·1	155·5	61·0	60·9	8·8	16·6
1928	12·6	2·9	64·3	18·7	227·4	161·5	51·8	52·6	9·5	16·9
1929	13·8	2·8	62·3	18·3	237·2	164·6	52·3	50·6	9·4	17·6
1930	11·8	3·2	61·8	18·6	233·7	162·8	47·7	45·4	9·5	17·1
1931	13·0	3·1	62·8	18·7	231·3	155·5	47·0	42·7	9·2	16·9
1932	14·7	3·4	62·5	19·5	233·3	153·8	45·7	38·9	10·8	16·9
	Mesentery and Peritoneum.		Intestine.		Rectum and Anus.		Ovary and Fallopian Tube.		Uterus.	
1901–10	8·2	15·8	63·5	72·3	79·8	55·9	—	19·2	—	?
1911–20	6·0	12·0	96·8	109·2	93·6	59·3	—	24·3	—	174·4
1921–30	5·4	8·1	125·4	129·9	105·5	59·8	—	36·0	—	157·9
1928	5·8	7·3	132·5	138·5	105·7	58 0	—	39·2	—	154·9
1929	4·4	7·2	134·3	138·6	108·0	58·3	—	40·8	—	150·3
1930	4·9	6·6	136·9	138·4	110·6	59·9	—	42·3	—	143·9
1931	5·3	6·6	136·1	136·3	109·1	59·5	—	42·7	—	139·9
1932	4·6	6·3	136·8	133·9	113·5	59·8	—	43·3	—	137·8
	Breast.		Rodent Ulcer.		Penis.		Scrotum.		Other Skin.	
1901–10	1·5	158·4	?	?	?	—	?	—	?	?
1911–20	1·6	170·8	6·7	4·3	6·6	—	2·4	—	17·6	10·9
1921–30	1·8	189·1	8·4	4·9	6·4	—	2·7	—	17·6	10·2
1928	1·9	196·2	9·0	5·7	6·1	—	3·1	—	18·2	9·9
1929	1·8	195·7	9·5	5·0	5·7	—	2·7	—	18·2	10·7
1930	2·3	194·5	9·1	4·6	6·3	—	2·3	—	16·1	9·0
1931	2·3	200·2	9·0	4·7	6·5	—	2·6	—	17·5	9·2
1932	1·8	196·6	8·0	4·2	6·0	—	2·8	—	16·1	11·0
	Larynx.		Lung.		Pancreas.		Kidney and Suprarenals.		Bladder.	
1901–10	?	?	10·2	7·0	14·5	11·8	8·4	7·6	?	?
1911–20	23·9	6·0	12·7	7·0	16·7	13·1	9·1	7·2	28·2	9·7
1921–30	31·3	7·1	25·2	9·6	26·3	19·5	11·7	8·9	30·5	11·4
1928	31·8	7·6	32·0	10·4	28·8	21·0	12·5	9·0	32·0	11·9
1929	31·4	7·6	33·4	11·9	30·3	20·0	13·2	9·6	32·3	12·3
1930	31·6	8·5	40·2	13·9	29·4	23·8	13·0	8·7	31·8	11·5
1931	31·7	7·9	51·2	16·3	28·8	21·6	13·9	9·5	34·2	11·0
1932	30·7	7·2	57·0	17·2	32·0	23·1	13·7	10·1	32·0	11·2
	Prostate.		Testis.		Bones.		Mediastinum.			
1901–10	11·8	—	?	—	?	?	8·1	4·5		
1911–20	26·5	—	4·9	—	15·7	12·0	9·2	4·6		
1921–30	47·7	—	5·8	—	17·6	13·5	12·6	5·8		
1928	53·8	—	6·3	—	18·6	14·6	13·3	5·4		
1929	56·4	—	5·2	—	17·6	14·6	12·1	5·6		
1930	54·9	—	6·7	—	17·3	12·0	13·1	5·3		
1931	56·4	—	5·9	—	16·5	11·7	11·4	4·6		
1932	58·5	—	6·8	—	16·8	13·3	9·8	4·0		

from cancer since 1911–20 is 74 per cent. at ages under 65, 126 at 65–75 and 160 at 75 and upwards.

Excepting the testis for males and the larynx in both sexes all the sites mentioned above as showing high rates of increase are included in the group of inaccessible sites in the Review for 1926 (p. 66). It is therefore probable that these increases are, in some measure, due to improvement in diagnosis, and in the case of cancer of the intestine, pancreas and gall bladder, to the continual transfer of certification from secondary cancer of the liver and mesentery and peritoneum to the primary site which has been in progress since 1901–10.

The increase in the mortality from cancer of the larynx and of the rectum for males may, in view of their greater accessibility, be more real than that from the other sites. The rate of increase for rectal cancer from 1911–20 to 1932, has been 21 per cent. for males but the rate remains almost stationary for females.

Mortality from cancer of the breast—the most frequent site in females and accounting for about one-fifth of their total cancer mortality—increased in 1911–20 by 8 per cent. over the previous decennium and for 1921–30 the rate of increase rose further to 11 per cent., whilst the rate in 1932 is 4 per cent. in excess of the rate during 1921–30. There has not, however, been any consistent change since 1928. Many cases of breast cancer followed after removal by secondary cancer of the liver were formerly certified under the latter description and the transfer of such deaths with improved certification doubtless accounts for the greater decline in the liver rate for females than for males and for part of the rise in the breast rate. The increase in standardized mortality from breast cancer since 1901–10 has been 24 per cent. at ages under 65, 18 at 65–75, and 34 at 75 and upwards. In so far as treatment only delays the fatal issue in many cases it must tend to increase the rates at later ages at the expense of those at earlier ages.

The fall between 1911–20 and 1932 of 21 per cent. in the mortality from uterine cancer—the third site in order of frequency —is of great significance. No other site of similar importance shows such a decline for either sex. The extent of the fall increases from 18 per cent. at ages under 45 to 25 per cent. at 45–65, and then diminishes again.

In the Report for 1913 the mortality recorded at various ages in the triennium, 1911–13, from cancer of the uterus, ovary and breast was tabulated for single women and for married or widowed women separately. This analysis was repeated for the ten years, 1911–20, in the Review for 1923 (Table XLVI and p. 71) separating also deaths from vaginal and vulval cancer. The rates for 1911–20, which are repeated in Table LII below in a condensed form, showed a large excess of mortality from uterine cancer in the married and widowed, this excess becoming relatively less with advancing age. For breast cancer mortality was higher in the single at ages over 35,

the amount of this excess increasing with advancing age, and for cancer of the ovary and Fallopian tube a similar excess in single women was evident at ages over 30. For cancer of the vulva and vagina mortality was slightly higher in the single at ages over 35.

Table LII.—Cancer of Certain Sites : Deaths of Single and Married Women, 1930–32, and Mortality per Million at Ages 15 years and upwards in 1911–20 and 1930–32.

Site of Cancer.	Civil State.	Period.	15–	25–	35–	45–	55–	65–	75 and up
NUMBER OF DEATHS REGISTERED 1930–32.									
Uterus	Single		3	39	147	284	374	293	141
	Married, etc.*		7	265	1,537	3,118	3,266	2,445	1,116
Ovary and Fallopian tube	Single		46	46	119	277	278	151	59
	Married, etc.*		14	91	312	841	804	604	206
Vulva, vagina	Single		4	4	11	20	40	67	52
	Married, etc.*		—	8	33	117	216	326	281
Breast	Single		2	66	384	939	1,047	845	520
	Married, etc.*		1	204	1,425	3,525	4,115	3,270	2,475
MORTALITY PER MILLION LIVING, 1911–20 AND 1930–32.									
Uterus	Single	1911–20	1	14	89	296	537	608	709
		1930–32	0	12	85	220	405	522	626
	Married, etc.*	1911–20	6	49	259	628	864	932	811
		1930–32	5	39	215	473	654	817	856
Ovary and Fallopian tube	Single	1911–20	3	11	47	133	187	169	132
		1930–32	5	14	69	214	301	269	262
	Married, etc.*	1911–20	4	10	29	70	93	91	70
		1930–32	9	13	44	128	161	202	158
Vulva, vagina	Single	1911–20	0	2	9	21	54	118	184
		1930–32	0	1	6	15	43	119	231
	Married, etc.*	1911–20	1	2	6	20	49	100	178
		1930–32	—	1	5	18	43	109	215
Breast	Single	1911–20	1	17	202	664	1,062	1,504	2,239
		1930–32	0	20	223	727	1,134	1,505	2,309
	Married, etc.*	1911–20	1	26	184	473	686	931	1,505
		1930–32	1	30	199	535	824	1,093	1,897
MORTALITY IN 1930–32 PER CENT. OF THAT IN 1911–20.									
Uterus	Single		—	86	96	74	75	86	88
	Married, etc.*		—	80	83	75	76	88	106
Ovary and Fallopian tube	Single		—	127	147	161	161	159	198
	Married, etc.*		—	130	152	183	173	222	226
Vulva, vagina	Single		—	—	67	71	80	101	126
	Married, etc.*		—	—	83	90	88	109	121
Breast	Single		—	118	110	109	107	100	103
	Married, etc.*		—	115	108	113	120	117	126

* Married, widowed and divorced.

The rates for 1930–32, given in Table LII, reveal a similar general relation to civil state, a decline in uterine cancer and an increase in cancer of the ovary and breast since 1911–20 being evident alike for the single and married. For the uterus the amounts of decline at various ages, measured by the actual differences between the

rates per million for the two periods, and as percentages of the rates in 1911–20, are as follows :—

		25–	35–	45–	55–	65–	75 and up.
Actual	S ..	— 2	— 4	— 76	—132	— 86	—83
	M ..	—10	—44	—155	—210	—115	+45
Per cent.	S ..	—14	— 4	— 26	— 25	— 14	—12
	M ..	—20	—17	— 25	— 24	— 12	+ 6

At ages under 45 mortality has declined more for the married than the single by either measure, but between 45 and 75, although the actual fall is greater for married than single, the relative improvement has been about the same for each, whilst at ages over 75 the fall has been confined to single women. For the vulva and vagina the single record a greater improvement than the married at ages up to 65, and for the ovary there has been a greater relative increase in married than single women at all ages.

This comparison suggests that although declining fertility may be responsible for the greater fall in mortality from uterine cancer at ages under 45 in the married or widowed, there have been some other important causes at work producing a reduction of mortality from those cancers of the uterus which arise independently of parturition.

For the breast the increases at various ages from 1911–20 to 1930–32 are as follows :—

		25–	35–	45–	55–	65–	75 and up.
Actual	S ..	+ 3	+21	+63	+ 72	+ 1	+ 70
	M ..	+ 4	+15	+62	+138	+162	+392
Per cent.	S ..	+18	+10	+ 9	+ 7	0	+ 3
	M ..	+15	+ 8	+13	+ 20	+ 17	+ 26

showing that, whilst mortality has increased about equally for single and married at ages under 55, the increase has been much greater for married than single at higher ages.

The advantage enjoyed by the married as regards risk of death from breast cancer shown by the differences between their rates at the same period, does not become important until the age of 45 is passed, and it is therefore hardly to be expected that the declining fertility of the married would appreciably affect the mortality rates from this form of cancer at ages below 45. At ages over 55 the difference between the single and married rates had become considerably less in 1930–32 than fifteen years previously. It must be remembered that fertility has been declining for 50 years, so any effects of this decline may reasonably be looked for at the later ages as well as in mid-life.

It was pointed out in the Review for 1931 that the separation into cancer of cervix and body of the uterus gives, as yet, no information of value since the part affected is not defined in over 60 per cent. of deaths.

Mortality rates from cancer of the lip, tongue and jaw have declined almost continuously since 1911–20 for both sexes. The female mortality from lingual cancer is extremely low compared with the mortality among males The male rate fell in 1932 for the fifth year in succession, the rate of 37·6 per million being only 74 per cent. of the mean rate in 1911–20.

In the Review for 1926 (p. 72) the secular trend of standardized mortality from lingual cancer in males during 1911–26 was compared with that of the crude rate from syphilitic diseases (syphilis, tabes, general paralysis and aneurysm). In the rates given below this comparison is continued, the standardized mortality being shown for each cause in each year, 1921 to 1932. The decline in syphilitic diseases, continuous from 1921 to 1926 when thus corrected for the change in age of the population, was arrested in 1927 and 1928 but has continued in each year since. For lingual cancer the rate fell from 1919 to 1923, fluctuated until 1927, and has fallen each year since.

MALE STANDARDIZED MORTALITY PER MILLION, 1921–1932.

	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.
Cancer of Tongue	51	49	47	48	49	44	47	45	42	41	38	37
Syphilitic Diseases	184	180	172	158	154	152	161	161	153	145	141	133

54. **Tumours not returned as malignant.**—As in other recent years all deaths from tumours not definitely stated to be malignant have been assembled in Table LIII. These numbered 3,126, the tumour being returned as benign in 1,843 instances, and its nature in the remaining 1,283 being unstated. The classification differs from that in use prior to 1931, as explained in the Review for 1931.

"Adenoma" of the prostate is classed to diseases of the prostate, No. 137, rather than to these headings because the deaths so returned seem to be of the nature of prostatic hypertrophy. Mortality attributed to prostatic diseases is seen from Table 8 to have increased rapidly in the last decade, the standardized rate being 102 per million in 1922 and 160 in 1932. Of the 6,888 deaths in 1922–24, 41·2 per cent. were attributed to cancer, 6·2 per cent. to benign tumours and 52·6 per cent. to other conditions, chiefly hypertrophy; of the 12,170 deaths in 1930–32 the proportions were respectively 37·7, 6·5 and 55·8. The deaths assigned to non-malignant conditions have therefore increased rather more rapidly than those assigned to cancer.

Adenoma of the thyroid is not included in this table, but is classed to No. 66 (*a*), Simple goitre.

Deaths ascribed to pituitary tumour have increased from 7 in 1913 to 46 in 1930, 41 in 1931 and 45 in 1932. Deaths from tumours

Table LIII.—Deaths attributed to Tumours not returned as Malignant—1932.

Part affected.	All Ages.		0–		15–		35–		45–		55–		65–		75–	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Tumours classed with other disease of organ affected.																
In 137. Prostate	278	—	—	—	—	—	—	—	—	—	42	—	117	—	119	—
Adenoma	268	—	—	—	—	—	—	—	—	—	40	—	116	—	112	—
Fibroadenoma	5	—	—	—	—	—	—	—	—	—	—	—	—	—	5	—
Fibroid	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
Myoadenoma	4	—	—	—	—	—	—	—	—	—	2	—	1	—	1	—
Tumours not classed with other disease of organ affected.																
54a and 55a. Female genital organs.																
Ovary — Cyst	—	270	—	1	—	24	—	40	—	41	—	46	—	60	—	58
Cystadenoma	—	7	—	—	—	2	—	—	—	1	—	3	—	1	—	—
Fibroid	—	5	—	—	—	—	—	1	—	—	—	—	—	3	—	1
Other benign	—	5	—	—	—	1	—	2	—	—	—	—	—	1	—	1
Nature unstated	—	17	—	—	—	—	—	—	—	4	—	5	—	5	—	3
Uterus — Fibroid	—	406	—	—	—	20	—	109	—	157	—	44	—	38	—	38
Polypus	—	19	—	—	—	1	—	5	—	9	—	3	—	1	—	—
Endometrioma	—	3	—	—	—	—	—	1	—	2	—	—	—	—	—	—
Other benign	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—
Nature unstated	—	9	—	—	—	—	—	1	—	3	—	1	—	3	—	1
Pelvis — Non-malignant	—	3	—	—	—	—	—	1	—	1	—	1	—	—	—	—
Broad ligament — Cyst	—	3	—	—	—	—	—	1	—	1	—	—	—	1	—	—
Other benign	—	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—
54b and 55b. Other sites.																
Brain — Cyst	15	13	1	3	6	1	4	1	—	1	4	6	—	1	—	—
Glioma	206	130	20	20	41	27	46	17	51	35	39	24	6	7	3	—
Angioma	5	2	2	—	2	—	1	—	—	2	—	—	—	—	—	—
Hæmangioma	4	1	—	—	1	1	1	—	1	—	1	—	—	—	—	—
Astrocytoma	7	7	2	2	1	2	2	2	1	—	1	1	—	—	—	—
Cholesteatoma	3	1	1	1	1	—	—	—	1	—	—	—	—	—	—	—
Other benign	15	19	3	5	4	3	3	1	4	5	1	5	—	—	—	—
Nature unstated	395	426	40	28	73	83	61	68	90	98	96	86	34	52	1	11
Pituitary gland — Cyst	1	4	1	1	—	1	—	1	—	—	—	—	—	1	—	—
Adenoma	7	7	—	—	2	—	2	3	1	2	1	1	1	1	—	—
Other benign	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—
Nature unstated	10	15	3	3	—	5	2	1	2	3	1	3	2	—	—	—
Thyroid — Non-malignant	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—
Nature unstated	1	2	—	—	1	—	—	1	—	1	—	—	—	—	—	—
Spinal cord — Cyst	1	2	—	—	—	1	1	—	—	—	—	—	—	1	—	—
Fibroma	2	2	—	—	—	—	—	—	1	—	—	1	1	1	—	—
Meningioma	2	1	—	—	—	—	1	—	—	—	1	1	—	—	—	—
Other benign	4	6	1	—	—	—	1	1	1	1	1	3	—	1	—	—
Nature unstated	11	9	—	—	2	—	1	1	2	2	1	3	4	1	1	2
Eye — Glioma	2	3	2	3	—	—	—	—	—	—	—	—	—	—	—	—
Other benign	1	3	—	1	1	—	—	—	—	1	—	1	—	—	—	—
Nature unstated	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Ear — Cholesteatoma	7	2	—	—	4	1	—	1	3	—	—	—	—	—	—	—
Other benign	1	2	—	1	—	1	1	—	—	—	—	—	—	—	—	—
Nose — Polypus	7	4	—	—	1	—	1	—	2	2	3	—	—	1	—	1
Other benign	3	1	—	—	1	1	1	—	—	—	—	—	—	—	—	—
Larynx — Papilloma	2	2	1	1	—	—	—	—	—	—	1	—	—	—	—	1
Other benign	1	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—
Mediastinum — Non-malignant	3	—	—	—	—	—	—	—	—	—	1	—	1	—	1	—
Nature unstated	65	33	—	—	5	1	7	5	11	3	21	10	16	10	5	4
Lung — Non-malignant	2	3	—	—	1	1	—	—	—	1	—	—	1	1	—	—
Nature unstated	59	19	—	1	1	—	7	—	15	1	23	8	12	5	1	4
Parotid — Mixed tumour	1	3	—	—	—	—	—	—	—	1	1	1	—	—	—	1
Other benign	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—
Nature unstated	2	3	—	—	—	—	—	—	—	—	—	—	1	2	1	1
Œsophagus — Nature unstated	5	8	—	—	—	1	—	2	—	1	3	—	2	1	—	3
Stomach — Non-malignant	2	2	—	—	—	—	—	—	1	—	—	1	1	1	—	—
Nature unstated	7	9	—	—	—	1	—	1	2	—	2	1	3	3	—	3

Table LIII.—*continued.*

Part affected.	All Ages.		0–		15–		35–		45–		55–		65–		75–	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Tumours not classed with other disease of organ affected—continued.																
Intestines .. Papilloma	1	3	—	1	—	1	1	1	—	—	—	—	—	—	—	—
Adenoma	5	1	1	—	—	—	—	—	3	1	—	—	—	—	1	—
Other benign ..	2	1	—	—	—	—	—	—	1	—	1	1	—	—	—	—
Nature unstated ..	16	25	—	—	—	—	—	—	—	2	2	4	7	9	7	10
Rectum .. .. Polypus	2	7	—	—	1	—	—	1	—	1	—	—	1	2	—	3
Other benign ..	1	2	—	—	—	—	—	—	—	—	—	—	—	1	1	1
Nature unstated ..	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
Liver .. .. Cyst..	—	3	—	—	—	—	—	—	—	1	—	1	—	1	—	—
Other benign ..	1	2	—	1	1	—	—	—	—	—	—	—	—	—	—	1
Nature unstated ..	7	8	—	—	—	—	—	1	1	2	2	—	3	1	1	4
Pancreas .. Cyst..	6	11	—	—	1	4	1	3	2	—	—	1	2	3	—	—
Adenoma	—	3	—	—	—	—	—	1	—	1	—	1	—	—	—	—
Nature unstated ..	5	2	—	—	1	—	—	—	—	—	2	—	2	—	—	2
Peritoneum .. Cyst..	1	2	—	1	—	1	—	—	1	—	—	—	—	—	—	—
Lipoma	3	—	1	—	—	—	—	—	—	—	1	—	1	—	—	—
Other benign ..	1	3	—	—	1	—	—	—	—	—	—	2	—	1	—	—
Nature unstated ..	3	1	—	—	—	—	—	—	1	—	1	1	1	—	—	—
Kidney .. .. Papilloma	4	—	—	—	—	—	—	—	—	—	3	—	1	—	—	—
Adenoma	2	1	—	—	—	—	—	—	1	1	—	—	1	—	—	—
Other benign ..	3	1	1	—	—	—	—	—	—	—	1	—	—	—	1	1
Nature unstated ..	9	8	1	2	1	1	1	1	1	—	2	2	2	—	1	2
Bladder .. .. Papilloma	105	38	—	—	3	1	4	—	21	—	20	8	29	17	28	12
Polypus	2	2	—	—	—	—	—	—	—	—	1	—	1	—	—	2
Other benign ..	—	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—
Nature unstated ..	12	3	—	—	—	—	—	—	1	—	—	—	4	—	7	3
Prostate.. .. Non-malignant ..	2	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—
Nature unstated ..	2	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—
Breast .. .. Non-malignant ..	—	7	—	—	—	1	—	1	—	1	—	—	—	—	—	4
Spine .. .. Non-malignant ..	1	1	—	—	—	—	—	—	1	1	—	—	—	—	—	—
Nature unstated ..	10	8	—	—	1	1	1	3	3	1	2	2	2	1	1	—
Neck .. .. Non-malignant ..	4	4	1	2	1	—	—	—	—	—	—	1	1	—	1	1
Nature unstated ..	2	—	—	—	—	—	1	—	—	—	—	—	—	—	1	—
Thorax .. .. Nature unstated ..	3	3	—	—	2	—	—	—	—	1	—	2	—	—	1	—
Abdomen .. Non-malignant ..	2	7	—	—	—	2	—	1	—	2	—	—	1	—	1	2
Nature unstated ..	14	23	1	1	—	—	—	—	1	6	4	4	3	6	5	6
Other sites .. Non-malignant ..	28	34	2	—	7	5	1	5	5	10	4	5	7	5	2	4
Nature unstated ..	7	3	—	—	2	—	—	—	1	—	1	1	1	—	2	2
Site not stated .. Non-malignant ..	2	2	—	—	—	—	—	—	1	1	—	1	1	—	—	—
Nature unstated ..	2	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—
Total (54 and 55)	1131	1717	87	82	170	197	153	285	236	411	251	298	157	251	77	193
Total, all tumours	1409	1717	87	82	170	197	153	285	236	411	293	298	274	251	196	193
„ benign tumours ..	760	1083	41	47	81	104	72	200	104	283	129	165	174	152	159	132
„ nature unstated ..	649	634	46	35	89	93	81	85	132	128	164	133	100	99	37	61

of the lung increased from numbers ranging between 11 and 21 during 1912–19 to 83 in 1932. Like lung cancer, which has also increased rapidly (Table LI), they affect males much more than females. The ratios of malignant to benign tumours of the mediastinum, lung, and abdominal organs suggest that large proportions of those returned as of unknown nature were probably malignant.

59. **Diabetes.**—The deaths allocated to this disease numbered 6,108, 2,425 of males and 3,683 of females, corresponding to standardized death-rates of 92 for males and 112 for females. This rate has been in excess for females in each year from 1923 onwards, whereas before that date excess for males was an invariable rule, though its amount had long been decreasing.

The rate for males reached its lowest value of 81 per million in 1925, increased again to 95 by 1929, and fell to 88 in 1931, but has increased to 92 in 1932. The female rate fell from 104 in 1915 to 82 in 1920, averaged 93 in 1921–23, and 91 in 1924–26, then rose to 101 in 1927, to 111 in 1929 and 1931, and to 112 in 1932.

Since 1922 the increase has been confined to the higher ages, as shown by the comparison in Table LIV of death-rates at various ages

Table LIV.—Mortality from Diabetes in 1920–22 and in subsequent years.

	Standardized Rates.			0–	15–	25–	35–	45–	55–	65–	75 and up
	All ages	0–55	55 and up								
	DEATH-RATES PER MILLION LIVING.										
Males :—											
1920–22 ..	93·7	47·9	477·5	14	42	60	69	133	309	661	772
1931 ..	87·9	29·5	578·7	12	22	30	38	96	314	817	1,160
1932 ..	92·1	28·8	622·8	10	21	30	45	93	318	893	1,304
Females :—											
1920–22 ..	90·1	43·1	483·9	16	35	48	62	124	355	656	632
1931 ..	110·8	33·3	761·5	11	26	31	45	121	474	1,090	1,225
1932 ..	112·3	32·5	781·9	13	20	29	48	119	485	1,137	1,222
	MORTALITY OF LATER YEARS PER CENT. OF THAT IN 1920–22.										
Males :—											
1923 ..	96	79	110	79	79	80	87	74	104	113	114
1924 ..	92	72	108	64	69	63	75	83	104	105	122
1925 ..	87	67	104	79	52	72	62	70	93	106	120
1926 ..	92	68	112	93	67	60	70	68	105	112	124
1927 ..	94	67	116	79	74	68	58	63	107	116	133
1928 ..	97	63	126	93	60	55	55	68	107	136	140
1929 ..	101	73	125	86	60	60	90	79	106	130	150
1930 ..	99	65	128	71	57	63	59	74	109	130	154
1931 ..	94	62	121	86	52	50	55	72	102	124	150
1932 ..	98	60	130	71	50	50	65	70	103	135	169
Females :—											
1923 ..	104	95	112	69	86	92	95	115	110	112	116
1924 ..	98	75	116	69	80	67	76	80	110	118	116
1925 ..	104	80	122	69	86	67	85	90	111	131	128
1926 ..	101	74	121	56	71	73	82	80	113	127	128
1927 ..	112	76	139	69	71	67	73	91	131	135	173
1928 ..	112	79	138	69	74	69	66	102	118	147	163
1929 ..	123	81	155	69	63	65	84	106	135	157	196
1930 ..	119	72	155	69	51	56	71	99	131	165	193
1931 ..	123	77	157	69	74	65	73	98	134	166	194
1932 ..	125	75	162	81	57	60	74	96	137	173	193

in subsequent years with those for 1920–22, before the introduction of insulin in 1923. Since 1923 the mortality of males has fallen at all ages under 55 to an extent ranging from 30 per cent. at 45–55 to 50 at 15–35, or 40 per cent. altogether, and that of females by

only 4 per cent. at 45–55, but by 25 per cent. at all ages under 55. But the effect of this large reduction, since the introduction of the new remedy in 1923, has been masked in the total death-rate by large increases of mortality for each sex at all ages over 55. In 1932 the rate for females of 75 and over was almost double that in 1920–22, so, as there were large increases also at 55–65 and 65–75, the reduction in rate at 0–55 is converted into an increase of 25 per cent. in total mortality. In males the senile increase has been much smaller, and as the decrease at ages under 55 is greater than for females the resultant mortality at all ages is 2 per cent. below that for 1920–22.

As pointed out in previous Reviews (1925, 1928) the course of senile diabetes mortality has been closely related to the food supply, falling during the period of restriction in 1916–18, and rising after that ended. It seems probable that the mortality ascribed to diabetes at the higher ages is mainly of dietetic origin, and that, so long as the conditions leading to its increase continue, the effect of insulin in reducing the mortality of early and middle life will continue to be masked in the total death-rate by the senile increase. It is also probable that more complete certification of diabetes as a causal factor in contributing to a fatal result has been the outcome of a more frequent search for the disease in elderly people, together with the introduction of the new form of death certificate.

71(a). **Pernicious Anæmia.**—The progress of mortality since 1927, when a new and effective treatment came into use for this disease is revealed in Table LV, where annual rates at various ages are expressed

Table LV.—Mortality from Pernicious Anæmia per Million living in 1931 and 1932, and per cent. of the rate for 1924–26 in each year 1927 to 1932.

	MALES.						FEMALES.					
	All Ages*	0–	25–	45–	65–	75 and up	All Ages*	0–	25–	45–	65–	75 and up
MORTALITY PER MILLION LIVING.												
1931 ..	34	3	13	98	311	301	43	5	27	134	328	231
1932 ..	39	5	13	111	368	339	49	5	29	149	379	235
MORTALITY PER CENT. OF THAT IN 1924–26.												
1927 ..	98	84	91	96	106	114	97	86	90	98	98	109
1928 ..	65	102	59	55	77	92	67	77	56	64	78	91
1929 ..	70	78	59	58	86	133	67	66	53	64	84	109
1930 ..	76	74	69	71	85	121	72	45	63	68	84	138
1931 ..	74	70	54	64	89	149	74	58	58	74	91	112
1932 ..	85	106	53	72	106	167	84	56	61	83	106	162

* Standardized.

in terms of the corresponding rates in the triennium preceding 1927. The actual rates in greater detail of age in each year from 1922 to 1931 were shown in the Review for 1931, Table XLVIII. For males the greatest relative decline in mortality has occurred at ages 25–45, and for females at ages under 25. The improvement noticeable in 1928 has been maintained on the whole at 25–45, and for females under 25, but at ages over 45 the rates continue to rise year by year for each sex, registered mortality in 1932 exceeding that of 1924–26 by 6 per cent. at 65–75 and by over 60 per cent. at 75 and upwards.

75. **Alcoholism.**—This heading in the International List of causes of death excludes organic disease attributed to alcoholism, so, in order to obtain as complete information as possible with regard to mortality from over-indulgence in alcohol, all the deaths in certification of which any mention of alcohol appears are assembled in Table LVI.

Although the conditions of medical certification can scarcely be expected to admit of a full and reliable return of deaths due, in part or altogether, to alcoholism, experience has shown that the figures in Table LVI and its predecessors have in the past fluctuated in remarkable harmony with other indices of alcoholic intemperance, and are thus not without value as indicative of at least the relative extent of this form of mortality in different years, even though they cannot be taken as measuring it absolutely. During the half century prior to 1926 the mortality rates derived from such tabulations fluctuated in close correspondence with the records of consumption of alcohol (*see* Diagram II in Review for 1929), when the change in the form of the medical certificate produced a temporary disturbance.

These deaths make up a total of 499 as against 95 classed to heading 75 as directly due to alcohol. The former number is 130 less than that for 1931. From 384 in 1926, the last complete year in which the old form of death certificate was in use, the deaths from other causes specified as of alcoholic origin increased to 644 in 1927, and to 755 in 1928, but afterwards declined to 553 in 1930, to 548 in 1931, and to 404 in 1932.

The number of deaths attributed solely to alcoholism without mention of other causes, 95, is higher than in 1930 and 1931 but lower than in any preceding year except 1918. The male standardized rate is 2·5 per million, compared with 2·8 in the quinquennium 1927–31 and 4·3 in 1922–26. The new form of medical certificate, introduced in 1927, has not resulted in any apparent increase in in this form of assignment of deaths.

82. **Cerebral Hæmorrhage, Apoplexy, etc.**—The revised form of the International List (1929) in use since 1931 combines in one group, No. 82, the causes of death which constituted No. 74, cerebral hæmorrhage, apoplexy, etc., No. 75, paralysis of unstated origin

Table LVI.—Deaths from or connected with Alcoholism—1932.

		All Ages.		Under 25		25–		35–		45–		55–		65–		75–	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
75.	Deaths attributed solely to alcoholism	61	34	—	—	4	1	15	6	24	8	9	10	6	6	3	3
	Deaths attributed to other causes in conjunction with alcoholism—																
8.	Scarlet fever	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—
11.	Influenza	4	—	—	—	—	—	1	—	—	—	1	—	2	—	—	—
23.	Tuberculosis of the respiratory system	8	2	—	—	—	—	1	—	6	1	—	1	1	—	—	—
34 (*b*, *c*)	Specific aortic endocarditis	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
46.	Malignant ulcer of gullet	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—
55 (*b*)	Neoplasm of right lung, nature unknown	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—
58.	Gout	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—
59.	Diabetes	3	1	—	—	—	—	—	1	1	—	2	—	—	—	—	—
71 (*a*)	Pernicious anæmia	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—
79.	Meningitis	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—
81 (3)	Acute myelitis	—	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—
82 (*a*)	Cerebral hæmorrhage	4	6	—	—	—	—	—	—	—	2	2	1	2	2	—	1
82 (*b*)	Cerebral thrombosis	2	1	—	—	—	—	—	—	2	1	—	—	—	—	—	—
84 (*b*)	Other forms of insanity	—	4	—	—	—	—	—	1	—	—	—	1	—	1	—	1
85.	Epilepsy	2	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—
87 (*b*)	Neuritis, Neuralgia	5	5	—	—	—	—	1	1	2	1	1	3	1	—	—	—
92.	Valvular disease of heart	10	2	—	—	1	—	1	—	2	1	4	—	2	—	—	1
93 (*a*)	Acute myocarditis	1	2	—	—	—	—	—	—	—	2	—	—	1	—	—	—
93 (*b* : 1)	Fatty heart	3	4	—	—	—	—	—	—	1	1	2	1	—	1	—	1
93 (*b* : 2)	Cardiovascular degeneration	5	—	—	—	—	—	—	—	—	—	2	—	3	—	—	—
93 (*b* : 3)	Other or unspecified myocardial disease	11	9	—	—	—	—	1	—	3	4	5	—	2	2	—	3
93 (*c*)	Myocarditis not distinguished as acute or chronic	9	2	—	—	—	—	2	—	—	1	5	—	1	1	1	—
94.	Diseases of the coronary arteries	2	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—
95 (*b* : 2)	Heart disease (undefined)	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
97.	Arterio-sclerosis	9	3	—	—	—	—	—	1	—	—	4	—	2	2	3	—
99	Endarteritis	—	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—
100 (1)	Ruptured gastric varix	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
106.	Bronchitis	5	—	—	—	—	—	1	—	—	—	2	—	2	—	—	—
107.	Broncho-pneumonia	6	3	—	—	—	—	2	—	3	—	—	2	1	1	—	—
108.	Lobar pneumonia	22	6	—	—	1	—	7	2	5	3	5	1	4	—	—	—
110 (2)	Pleurisy	1	1	—	—	—	—	—	—	1	1	—	—	—	—	—	—
115 (1)	Septic infection of mouth	—	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—
115 (3)	Acute tonsillitis	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—
115 (4)	Other diseases of the buccal cavity, pharynx, etc.	1	1	—	—	—	—	—	—	—	—	—	1	1	—	—	—
117 (*a*)	Gastric ulcer	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
118 (1)	Inflammation of the stomach	3	1	—	—	—	—	—	1	1	—	1	—	1	—	—	—
121.	Appendicitis	3	—	—	—	—	—	1	—	1	—	—	—	1	—	—	—
122 (*a* : 1)	Strangulated hernia	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—
124 (*a*)	Cirrhosis of the liver	115	62	—	—	1	3	11	5	24	18	42	24	35	11	2	1
126 (2)	Impacted gall stone	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
128.	Acute pancreatitis	1	1	—	—	—	—	—	—	1	1	—	—	—	—	—	—
131.	Chronic nephritis	9	5	—	—	—	—	2	1	5	1	—	2	2	1	—	—
151.	Carbuncle of back	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
163–171.	Suicide	2	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—
186 (pt.)	Injury by fall	11	1	—	—	—	1	1	—	6	—	4	—	—	—	—	—
186 (pt.)	Injury by crushing (vehicles, railway, etc.)	3	1	—	—	—	—	—	—	1	—	2	1	—	—	—	—
	Other violence	2	2	—	—	1	—	—	—	1	1	—	—	—	1	—	—
		335	164	—	—	10	5	48	19	93	48	99	50	75	30	10	12

(mostly hemiplegia), and No. 83, cerebral softening, in the former classification. The last two groups are of diminishing importance, their contributions forming 4·8 and 1·3 per cent. respectively of the total in 1932, compared with 7·9 and 3·1 per cent. respectively in 1921. The number of deaths assigned to this heading showed a substantial decrease in 1927 and 1928 when compared with the immediately preceding years, but has not continued to decline since, deaths in 1932 numbering 26,529 (males 11,592, females 14,937)

compared with 25,615 in 1928 (Table 6). The standardized rates in 1932 are 425 per million for males and 418 for females, those for the preceding year being 435 and 421. The true frequency of these causes of death since 1926 is somewhat masked by an increasing tendency, encouraged by the introduction in 1927 of the new form of medical certificate, to state the disease causing the hæmorrhage, which has resulted in a transfer of deaths from cerebral hæmorrhage to arterio-sclerosis, myocardial disease and chronic nephritis, three of the chief diseases with which cerebral hæmorrhage is most frequently associated in the certification of causes of death. It is difficult to estimate the extent of the transfer to myocardial disease and chronic nephritis, but any vitiation of comparability with past records in respect of arterio-sclerosis can to a great extent be overcome by adding the deaths from cerebral vascular lesions associated with arterio-sclerosis, No. 97 (1) and (2), separately tabulated since 1921 (as 91*b* : 1 in the previous classification), to those from cerebral hæmorrhage without statement of cause.

The crude death-rate from the combined headings (Nos. 82 and 97 (1) and (2)) was 923 for males and 1,018 for females. When standardized, however, to eliminate the effect of the increasing age of the population, the male rate of 651 and the female rate of 592 per million are remarkably close to the rates of 1921, namely, 640 for males and 592 for females.

90–95. **Heart Diseases.**—The number of deaths allocated to this cause, 102,825, 49,160 of males and 53,665 of females, was as usual larger than for any other item in the list of causes.

These numbers are equal to crude death-rates per million of 2,550 for males and 2,565 for females, which are the highest recorded for each sex during the present century. When standardized, the revised rates are considerably reduced to 1,841 for males and 1,559 for females, but still remain in this form the highest for males in any year and in any year except 1929 and 1931 for females (Table 8).

As pointed out in previous Reviews the recent increase of crude mortality (Table 7) from heart diseases is due, among other causes, to the increasing age of the population and to rapid increase of the record of myocardial degeneration in certification of the deaths of old people. Table LVII shows how the rates quoted above for 1932 have been affected by these influences, and what, but for them, would have been the course of recent mortality from diseases of the heart. This has been done by ascertaining and deducting from the standardized death-rate from all heart diseases (Table 8) that portion of it for which chronic myocardial disease (other than fatty heart) at ages over 65 was responsible in each year 1921–32, that is to say, the deaths at this age in the standard million derived from the three groups 93*b* (2), 93 (*b*) (3) and 93 (*c*), corresponding to No. 90 (7) prior to 1931. The rates for the years 1922 to 1930 were shown in detail in Table L of the Review for 1931.

The crude death-rate from heart disease has increased since 1921 by 80 per cent., but the standardized rate has increased by 53 per cent. for males and 41 per cent. for females. When further allowance is made for the disturbing influences mentioned above, the increase is seen to have been only 2 per cent. for males and there has been a decrease of 7 per cent. for females.

Table LVII.—Deaths in Standard Million from Heart Diseases at all ages, and from senile myocarditis at ages over 65 in each year 1921–32 ; also the mortality in each year from Heart Diseases other than senile myocarditis.

	Males.			Females.		
	All Heart Diseases.	" Senile Myo-carditis " (*see* text).	Col. 1 less col. 2.	All Heart Diseases.	" Senile Myo-carditis " (*see* text).	Col. 4 less col. 5.
	(1)	(2)	(3)	(4)	(5)	(6)
1921 ..	1,203	154	1,049	1,107	145	962
1931 ..	1,840	744	1,096	1,593	646	947
1932 ..	1,841	776	1,065	1,559	661	898
	Rates for subsequent years per cent. of those for 1921.					
1922 ..	108	129	105	110	129	107
1923 ..	101	136	95	102	134	97
1924 ..	105	165	97	107	158	99
1925 ..	110	203	96	110	192	98
1926 ..	108	219	92	107	210	92
1927 ..	117	259	97	118	248	98
1928 ..	123	296	97	122	285	97
1929 ..	153	450	109	150	427	108
1930 ..	142	421	101	134	388	96
1931 ..	153	483	104	144	446	98
1932 ..	153	504	102	141	456	93

Table LVII also shows how rapid has been the increase for each sex of mortality ascribed to senile myocarditis, the rates for 1932 being nearly five times those of 1921. Its contribution to total heart disease mortality has increased from 13 per cent. in 1921 to 42 per cent. in 1932. Another change in the medical terminology of heart disease is reflected in the continuous rise in the standardized death-rate attributed to " disordered action of the heart," now separately classified in the International List as group No. 95 (*a*), from 6 per million for each sex in 1919 to 37 for males and 46 for females in 1932. This increase is doubtless mainly at

the expense of "heart disease (undefined)" for which the standardized rates have fallen since 1922 from 271 to 88 for males and from 250 to 80 for females.

The progressive rise since 1920, commented on in previous Reviews, in the standardized mortality assigned to diseases of the coronary arteries and angina pectoris, No. 94, continued in 1932. For males this rate has risen from 32 in 1920 to 188, and for females from 13 to 68. Part of this has been due to the transfer, since mid 1927, of deaths due to atheroma and sclerosis of the coronary arteries from the arterio-sclerosis group, as pointed out in the Review for 1928 (p. 100), but the increase since 1928, amounting to 86 per cent. for males and 94 per cent. for females represents a real change in the frequency with which death is attributed to coronary disease. This has occurred at every age-group, the percentage increase in standardized mortality at ages under 45 being 61 for males and 101 for females, at 45–65 80 for males and 86 for females, and at 65 and upwards 94 for males and 101 for females.

97. **Arterio-sclerosis.**—The deaths from this cause were first distinguished in 1911, when they numbered 3,675. In each successive year the number increased, reaching a total of 25,753 in 1928. In 1929 the number fell to 20,987, and in 1930 to 18,925, but increased again to 20,729 in 1931, and to 21,589 in 1932.

Changes in medical terminology have naturally vitiated the comparability of this and certain other headings in the list of causes of death. Many of the deaths now returned as due to arterio-sclerosis would have been certified formerly as due to senile decay. Thus the standardized death-rate from "old age" fell during the decennium 1919 to 1928 from 717 to 349 per million for males and from 662 to 348 for females, whilst that for arterio-sclerosis rose in the same period from 305 to 581 for males and from 164 to 352 for females. Increasing tendency to describe cerebral hæmorrhage as due to arterio-sclerosis has also produced a transfer of deaths from the former group to the latter, as shown by the fact that the standardized death-rates for cerebral vascular lesions without mention of arterio-sclerosis were declining from 1922 to 1928 whilst the rates for arterio-sclerosis with cerebral lesion rose more rapidly than the rate from arterio-sclerosis without record of cerebral lesion. Thus from 1921, the first year for which the distinction was made, to 1928, for males the second rate rose from 101 to 221, and the third from 248 to 360, and for females the second rose from 67 to 161 and the third from 121 to 191. Superimposed on these changes, a further disturbance in comparability arose owing to a change in classification, introduced in 1929. For some years past the term "cardiovascular degeneration" and the joint statement of arterio-sclerosis and cardiac or myocardial degeneration have appeared with increasing frequency on medical certificates. The former is assigned by international usage to heart disease, but the combined statement of the two diseases has,

by the operation of the selective rules for joint causes, been assigned to the disease entered as primary on the medical certificate. In consequence of the increased frequency of the use of the compounded term (1,060 deaths in 1925 and 2,229 deaths in 1930) it was decided to assign both forms of statement to heart disease.

This change of practice accounts in great measure for the decline of the standardized rates from 581 for males and 352 for females in 1928 to 398 and 261 per million in 1930 (Table 8). A slight increase occurred in 1931, to 411 and 275 (revised rates), and in 1932 to 410 and 284 per million respectively.

104–114. **Diseases of the Respiratory System.**—The total number of deaths allocated to these diseases was 54,808, or 9,199 less than in 1931. The standardized death-rate for males, 1,425 per million, is the lowest yet recorded, and the rate for females, 1,056, is lower than in any year except 1930 (Table 8). The ratio of the male to the female rate was 1·349. The March quarter was responsible for 44 per cent. of the deaths. A higher proportion than this was noticed in 1924, 1927, 1929 and 1931, with their greater influenza mortality in that quarter (Table XXXV), but a like correspondence was not noticed in 1922. Details for each year since 1921 were shown in the Review for 1931, Table LI.

In the Review for 1925, mortality from respiratory diseases, and from bronchitis and pneumonia separately, was analysed according to sex, age and part of the country (Tables XLVI–XLVIII). In Table LVIII a similar analysis is made for 1932 in the seven large regions as now defined, the rates at separate ages being expressed as percentages of the rate for England and Wales. Of these regions the North and Wales are directly comparable with divisions shown in the previous analysis for the years 1921–25, the other regions being different.

The standardized rates at all ages for respiratory disease are highest in the North, with an excess over the general average of 21 and 22 per cent. for males and females respectively, followed by Wales with 6 and 9 per cent. excess. In 1921–25, the corresponding figures in the North were 29 and 31 per cent. excess for the two sexes, indicating a trend towards the general average since that date. For the Midlands and Greater London the rates are not far removed from the average, whilst in the remainder of the South East and the South West they are about 28 per cent. below, and in the East 35 per cent. for males and 21 for females below the average rate.

The association of respiratory mortality at ages under 5 with latitude on the one hand and with overcrowding rates on the other has been dealt with in Table XXVII, and there can be little doubt that the Northern excess at all ages is to a greater extent the outcome of the less favourable conditions of life of which a higher density per room is an index, than of climatic differences.

When respiratory death-rates at various ages are studied, the differences between the percentage ratios in the North and the South East, excluding Greater London, are as follows :—

Age.	0–	1–	2–	5–	15–	25–	35–	45–	55–	65–	75 and up.
Males ..	75	82	88	85	44	48	42	43	28	36	7
Females	70	81	84	78	47	41	40	32	39	42	11

The contrast is greatest at 2–5 years, and almost as great at 1–2 and 5–15, but becomes much smaller at 15–25 and then declines very slightly to 75, after which it is unimportant. In 1921–25 the differences between North and South, not quite comparable with the above figures since the South included London and the South West, fell from about 60 at ages under 15 to about 20 at ages over 75.

Bronchitis and pneumonia show remarkable contrasts in their regional distribution at certain ages which again suggest, in the words of the Review for 1925 (p. 60) " that the ' bronchitis ' of one area may include a number of deaths which would be attributed to pneumonia in another, and *vice versa*," that is to say, that there

Table LVIII.—Respiratory Diseases : Distribution of Mortality in 1932 from Respiratory Diseases and from Bronchitis and Pneumonia, by Regions, Sex and Age.

—	England and Wales.	Greater London.	Remainder of South East.	North.	Midland.	East.	South West.	Wales.
ALL RESPIRATORY DISEASES.								
MALES.								
All Ages. Crude, per 100,000 living ..	152	144	128	172	154	117	132	162
Standardized	143	136	102	173	146	93	102	151
Per cent. of rate for England and Wales. 0–	100	84	57	132	103	61	67	109
1–	100	83	54	136	108	62	46	96
2–	100	80	57	145	84	75	60	93
5–	100	70	65	150	80	80	65	75
15–	100	87	78	122	109	70	70	83
25–	100	76	73	121	124	42	64	103
35–	100	99	74	116	117	53	83	87
45–	100	106	71	114	103	61	76	110
55–	100	110	82	110	96	61	70	122
65–	100	113	76	112	97	60	78	130
75 and over	100	104	96	103	106	87	89	103
All Ages, standardized	100	96	72	121	103	65	72	106
FEMALES.								
All Ages. Crude, per 100,000 living.. ..	122	115	110	132	121	118	118	124
Standardized	106	97	76	129	105	83	78	115
Per cent. of rate for England and Wales. 0–	100	84	60	130	96	82	65	120
1–	100	72	61	142	95	53	66	111
2–	100	75	53	137	107	70	59	110
5–	100	83	61	139	83	83	50	78
15–	100	93	73	120	93	67	100	113
25–	100	82	82	123	91	55	82	109
35–	100	91	80	120	100	80	100	97
45–	100	88	86	118	104	88	81	102
55–	100	109	75	114	99	80	82	97
65–	100	105	74	116	105	75	71	116
75 and over	100	106	90	101	106	95	89	108
All Ages, standardized	100	92	72	122	100	79	74	109

Table LVIII—*continued.*

——	England and Wales.	Greater London.	Remainder of South East.	North.	Midland.	East.	South West.	Wales.
BRONCHITIS.								
Males.								
Per cent. of rate for England and Wales. 0–	100	61	51	141	101	75	70	134
1–	100	67	62	138	110	76	43	95
5–	100	50	50	150	50	100	50	100
25–	100	88	50	125	100	38	75	100
45–	100	100	71	121	87	65	63	131
65 and over	100	90	92	105	107	90	95	123
Females.								
Per cent. of rate for England and Wales. 0–	100	52	53	145	95	70	70	155
1–	100	57	52	138	86	71	86	176
5–	100	100	100	100	200	100	200	200
25–	100	67	67	167	100	0	100	133
45–	100	81	58	131	104	77	81	115
65 and over	100	89	87	106	111	104	95	118
PNEUMONIA (all forms).								
Males.								
Per cent. of rate for England and Wales. 0–	100	90	59	129	104	55	64	102
1–	100	84	55	142	98	64	51	90
5–	100	82	71	135	94	71	59	82
25–	100	89	75	119	122	44	72	83
45–	100	113	79	110	105	56	72	91
65 and over	100	135	87	103	93	67	74	95
Females.								
Per cent. of rate for England and Wales. 0–	100	94	61	126	97	84	59	108
1–	100	75	58	141	101	57	57	98
5–	100	85	62	138	85	77	69	85
25–	100	90	85	120	90	75	95	105
45–	100	112	86	108	96	82	75	86
65 and over	100	138	89	95	96	74	73	94

is an important amount of transfer of deaths between these assigned causes. For bronchitis the North has the highest rates at ages up to 45 for males, and at 25–65 for females, but at other ages Wales gives the highest rates. For pneumonia the North has the highest rates up to 25 for males and up to 45 for females, but at ages over 45 for each sex Greater London shows higher rates than any region. At ages over 65 Greater London mortality from bronchitis is about 10 per cent. below the general average, that in the North being about 5 per cent. above; for pneumonia Greater London shows rates about 35 per cent. above average whilst the North shows only 3 per cent. excess for males and 5 per cent. deficiency for females.

Comparison of the ratios of bronchitis to pneumonia deaths in London, the rest of the South East, and the North (see page 86) suggests that the conclusion drawn from 1921–25 rates, that "at both extremes of life London appears to call pneumonia many cases which are elsewhere regarded as bronchitis," still holds in 1932.

Ratio of Bronchitis Deaths per 100 *Pneumonia Deaths*, 1932.

Ages.	0–	5–	45–	65–	75 and up.
Greater London	16	16	43	82	153
Remainder of South East ..	21	13	42	107	240
North	25	17	59	130	289

140–150. **The Puerperal State.**—The number of deaths assigned to pregnancy or childbirth was 2,587 (Tables 6, 21 and LXIV), corresponding to a rate of 4·21 per 1,000 (live) births. Inclusion of the 713 deaths in Table LXV, which were classified to non-puerperal headings, raises the proportion to 5·37 deaths stated to have been caused by, or associated with, pregnancy and childbirth for every 1,000 (live) births, but it should be remembered that most of these 713 deaths were due to the risks to which the general population of women was exposed, and would have occured if these women had not been pregnant.

In addition to these deaths 69 others from criminal abortion were assigned to various forms of violence, *e.g.*, suicide, murder, etc., in accordance with the verdicts recorded by the coroners' juries. As these deaths resulted from illegal interference with the pregnancy, it has not been the practice to include them in the maternal mortality rate. Their inclusion with the other maternal deaths would raise the rate to 5·49 per 1,000 (live) births.

For comparison of the deaths definitely assigned to pregnancy and childbirth with those so classed for years prior to 1911 deduction is required of 122 deaths from puerperal nephritis and albuminuria (included in No. 146, Table LXIV), which before that date were not distinguished as puerperal. The resultant rate of 4·01 deaths per 1,000 live births is compared in Table LIX with similar rates for the preceding forty-one years, before which the comparability of the figures is doubtful. Puerperal diseases of the breast formed a separate group amongst "other puerperal causes" from 1911 onwards, the differences between the "puerperal sepsis" rates under the two classifications being due to the consequent transfer of mastitis deaths from the latter group to the former.

It will be seen from Table LIX that the mortality from puerperal sepsis (1·61 per 1,000 live births) is lower than in the four preceding years but higher than in any other years except 1919–20 since the adoption of the International List in 1911. Higher rates were, however, recorded for the three quinquennia, 1891–1905, on the old system of classification. The mortality from non-septic conditions, which had decreased from 2·63 in 1928 to 2·45 in 1931, shows an increase to 2·60, a rate only exceeded 6 times since 1911.

The decrease in the mortality from non-puerperal causes from 1·44 in the previous year to 1·16 in1932 is largely accounted for by 111 fewer deaths associated with influenza and pneumonia, 28 fewer with mitral disease and 24 fewer with phthisis. It can be seen

from Table LIX how this rate has fluctuated with influenza mortality; the years 1918–19, 1922, 1924, 1927, 1929 and 1931 each witnessing an increase.

Table LIX.—Mortality of Women in or associated with Childbirth per Thousand Children born alive, 1891–1932.

Year.	Classification in use from 1911 onwards.				Classification in use before 1911.				§ Total Mortality from or associated with pregnancy or childbirth.
	Puerperal Sepsis.	Other Puerperal causes.	Total Puerperal Mortality.	* Non-puerperal causes.	Puerperal Sepsis.	Other Puerperal causes.	Total Puerperal Mortality.	† Non-puerperal causes.	
1891–95	—	—	—	—	2·60	2·89	5·49	—	—
1896–1900	—	—	—	—	2·12	2·57	4·69	—	—
1901–05	—	—	—	—	1·95	2·32	4·27	1·29	5·56
1906–10	—	—	—	—	1·56	2·18	3·74	1·26	5·00
1911–15	1·42	2·61	4·03	0·99	1·50	2·31	3·81	1·21	5·02
1916·20	1·51	2·61	4·12	1·68	1·59	2·29	3·88	1·92	5·80
1921–25	1·40	2·50	3·90	1·14	1·48	2·21	3·69	1·35	5·04
1926–30	1·73	2·54	4·27	1·24	1·78	2·23	4·01	1·50	5·51
1911 ..	1·43	2·44	3·87	1·04	1·52	2·15	3·67	1·24	4·91
1912 ..	1·39	2·59	3·98	0·97	1·47	2·31	3·78	1·17	4·95
1913 ..	1·26	2·70	3·96	0·91	1·34	2·37	3·71	1·16	4·87
1914 ..	1·55	2·62	4·17	0·95	1·63	2·32	3·95	1·17	5·12
1915 ..	1·47	2·71	4·18	1·09	1·56	2·38	3·94	1·38	5·27
1916 ..	1·38	2·74	4·12	0·94	1·47	2·40	3·87	1·19	5·06
1917 ..	1·31	2·58	3·89	0·95	1·39	2·27	3·66	1·18	4·84
1918 ..	1·28	2·51	3·79	3·81	1·35	2·20	3·55	4·05	7·60
1919 ..	1·67	2·70	4·37	1·93	1·76	2·36	4·12	2·18	6·30
1920 ..	1·81	2·52	4·33	1·13	1·87	2·25	4·12	1·34	5·46
1921 ..	1·38	2·53	3·91	1·09	1·46	2·25	3·71	1·29	5·00
1922 ..	1·38	2·43	3·81	1·35	1·46	2·12	3·58	1·58	5·16
1923 ..	1·30	2·51	3·81	1·01	1·38	2·22	3·60	1·22	4·82
1924 ..	1·39	2·51	3·90	1·16	1·48	2·22	3·70	1·36	5·06
1925 ..	1·56	2·52	4·08	1·07	1·62	2·24	3·86	1·29	5·15
1926 ..	1·60	2·52	4·12	1·02	1·64	2·23	3·87	1·27	5·14
1927 ..	1·57	2·54	4·11	1·32	1·63	2·20	3·83	1·60	5·43
1928 ..	1·79	2·63	4·42	1·20	1·85	2·30	4·15	1·47	5·62
1929 ..	1·80	2·53	4·33	1·49	1·83	2·24	4·07	1·75	5·82
1930 ..	1·92	2·48	4·40	1·19	1·96	2·19	4·16	1·43	5·59
1931 ..	1·66	2·45	4·11	1·44	1·71	2·22	3·93	1·62	5·55
1932 ..	1·61	2·60	4·21	1·16	1·68	2·33	4·01	1·36	5·37

* 713 deaths in 1932 (Table LXV).
† 713 deaths in Table LXV and 122 from puerperal nephritis and albuminuria in 1932.
§ See first paragraph on page 86 with reference to the meaning of this rate.

Reliable statistics of still births have been available since 1928, and as the total births, *i.e.*, live and still births, provide a closer approximation to the number of women exposed to the risk of dying from puerperal conditions than do live births alone, the maternal mortality rates are shown in Table LX calculated on both bases, and will continue to be so published for a sufficient period to enable statistical continuity to be assured.

It will be observed that while the rates on the wider basis are naturally lower than those based on live births the relative changes from year to year remain practically unchanged.

The rates from individual causes according to the International List for each year 1922 to 1932, shown in Table 7, differ entirely, as explained in the Review for 1931, from those tabulated prior to that year, in that (i) they are based not upon populations but upon

births, live births up to 1927, live and still births from 1928 onwards; (ii) the Revised International List differs from the previous one by separating post-abortive sepsis from puerperal sepsis, and defining a new group of " other toxæmias of pregnancy " previously included in " other accidents of pregnancy "; (iii) the new group of non-septic

TABLE LX.—Mortality of Women in or associated with Childbirth per Thousand Children born alive, and per Thousand Total Births (Live born and Still born).

	Per 1,000 live births.					Per 1,000 total births.				
	Puerperal Sepsis.	Other * puerperal causes.	Total * puerperal mortality.	Non-puerperal causes.	Total * mortality.	Puerperal Sepsis.	Other * Puerperal causes.	Total * puerperal mortality	Non-puerperal causes.	Total * mortality.
1928 ..	1·79	2·63	4·42	1·20	5·62	1·72	2·52	4·25	1·15	5·39
1929 ..	1·80	2·53	4·33	1·49	5·82	1·73	2·43	4·16	1·43	5·59
1930 ..	1·92	2·48	4·40	1·19	5·59	1·84	2·38	4·22	1·14	5·36
1931 ..	1·66	2·45	4·11	1·44	5·55	1·59	2·35	3·95	1·38	5·33
1932 ..	1·61	2·60	4·21	1·16	5·37	1·55	2·49	4·04	1·11	5·15

* Not including criminal abortion.

abortion is subdivided for convenience in Tables 6, and 7, into two groups, deaths from " hæmorrhage following abortion " which prior to 1931 were included without specification in the old group of " other accidents of pregnancy," and deaths from " abortion without record of hæmorrhage " which comprised the old " abortion " group.

Since the mortality assigned to causes No. 144–150 (that is to say, causes other than abortion, ectopic gestation or other accidents of pregnancy) occurs almost entirely in women whose pregnancy has lasted 28 weeks or over, the women at risk of death from these causes would properly be measured by the number of confinements resulting during the year in one or more live or stillbirths *plus* the number of women who died from these causes undelivered *plus* the number of women pregnant over 28 weeks who died from other causes without childbirth supervening. The number in the second category must be small compared with the total deaths from causes 144–150, and the number in the last category having no mention of pregnancy on the certificate, which would consequently escape inclusion in Table LXV, may be presumed to be small compared with the number of deaths after the 28th week of pregnancy which are recorded in that table. It follows that the number at risk to be added to the live and still birth confinements will be less than the total deaths assigned to groups 144–150 plus those deaths included in Table LXV which were not associated with abortion, which would mean an *addition* of 2,729 in 1932, or of 4 per 1,000 to the number of live and still births in the year

(640,443). On the other hand, owing to multiple births, the number of confinements resulting in a live or still birth is about 1 per cent. less than the total of all the births registered, which would necessitate a *deduction* of that order from the total live and still births. It may be contended, however, that since the mortality risk is greater in a multiple confinement, the number of births gives as good a measure of the exposures to risk as the number of confinements resulting in those births.

The amount of the net correction of mortality rates for all these factors would be so small and would vary so little from year to year or from place to place that its effect on any comparisons between rates would be inappreciable, and the calculation of maternal mortality from causes No. 144–150 upon the simple total of live and still births is a practical expedient which seems open to little objection.

Ectopic gestation (No. 142) and other accidents of pregnancy other than abortion (No. 143), which are events presumably tending to occur in a constant proportion of pregnancies from causes not usually under control, may also be related to the births without serious objection as giving an approximate relative measure from year to year or from place to place, though not an absolute measure, of the total pregnancies.

It may be urged with some force, however, that with regard to abortion there is less justification for calculating mortality rates from this cause on the basis of the number of live and still births. The risk of death from abortion is a function of the number of abortions, and there is no particular reason to suppose, since natural processes are allowed to have less complete control than formerly in the matter of child-bearing, that the number of abortions has been falling in recent years in proportion to the number of births, nor indeed that the number has necessarily been falling at all. In the absence of knowledge as to the number of abortions, it would seem reasonable to relate the abortion deaths to the number of women of reproductive age in the population, and to calculate an abortion rate on this basis, together with a maternal mortality rate excluding abortion based on the births. This has been done on page 91.

As in 1931, the deaths attributed to or associated with abortion, defined in Tables 6, 7, 25 (supplementary group VI) and in the note to Table LXV, have been brought together in Table LXI. The heading " post-abortive sepsis " includes all deaths attributed to puerperal sepsis where abortion or miscarriage is said to have occurred excepting those in which the duration of pregnancy is stated to have been 7 months or over. Group No. 141 comprises deaths attributed to abortion, miscarriage not further defined, or to premature birth or confinement stated or found on inquiry to have occurred after less than 7 months' gestation, retention of dead ovum, accidental hæmorrhage of pregnancy or ante-partum hæmorrhage. Criminal abortion comprises only inquest cases, the

69 deaths in 1932 being classed to suicide in 36, murder in 6, manslaughter in 6, offences against the person in 3, and open verdicts in 18.

Table LXI.—Deaths attributed to, or associated with Abortion, 1926–32.

Old List No.	New List No.		1926.	1927.	1928.	1929.	1930.	1931.	1932.
Part of 146	140	Post-abortive sepsis ..	222	215	224	238	300	229	262
	141	Abortion not returned as septic :—							
Part of 143c		(1) Hæmorrhage following abortion.	72	72	47	51	59	97	105
143a		(2) Without record of hæmorrhage.	86	82	77	67	65	21	12
199, 202	VI (Table 25).	Criminal abortion (inquest cases).	51	47	57	67	67	79	69
		Total attributed to abortion.	431	416	405	423	491	426	448
		Associated with abortion but not classed to it.	?	?	83	182*	77	77	90
		Total attributed to, and associated with abortion.	?	?	488	605	568	503	538

* The excessive number of deaths associated with abortion but not classed to it in 1929 was partly due to the influenza epidemic of that year and partly to the allocation to abortion, rather than to childbirth, for that year only, of 63 deaths said to be associated with premature delivery without definition as to length of gestation.

It should be noted that abortions resulting from other complications of pregnancy are still classed to Nos. 143, 146, 147 and do not appear under any of the " abortion " headings unless there is some other associated condition causing the death to appear in Table LXV. Such abortions, which are secondary to a toxaemia or some other morbid condition of pregnancy, even if they could all be ascertained by special inquiry, are in a class by themselves and there would seem to be little justification for adding them to Table LXI.

Of the 262 deaths from post abortive sepsis, 38 were of single women, 219 married and 5 widowed; the 117 non-septic abortion deaths consisted of 9, 106 and 2 respectively, and the 69 criminal abortions of 20 single, 45 married, 3 widowed and 1 divorced.

It has been frequently alleged that the increase in mortality from puerperal sepsis may be due to increase in the proportion of deaths from septic abortion, but no absolute statistical proof of this assertion is available from the record in the death registers as many of the medical certificates contain no mention of whether the sepsis followed abortion or delivery at term. The number of deaths classified to puerperal sepsis and stated to have occurred after abortion and the percentage of such deaths to the total deaths from puerperal sepsis for the years 1927–32 are as follows :—

1927	215	20·9
1928	224	18·9
1929	238	20·5
1930	300	24·1
1931	229	21·8
1932	262	26·4

During 1932 inquiry was made regarding a sample of 100 deaths attributed to "puerperal sepsis" and having no statement as to the duration of pregnancy. The result was that 4 were assigned to post-abortive sepsis (No. 140) and 96 to puerperal sepsis not returned as abortion (No. 145), 90 of the latter being definitely stated as "full-term," 4 as premature but over 28 weeks' gestation, and 2 presumably full term. The residual number of deaths from puerperal sepsis with no statement as to duration of pregnancy was 412, and assuming the sample of 100 to have been representative, 4 per cent. of these, or 16 deaths, probably also belong to the septic abortion group. If this correction is made, the post-abortive sepsis deaths are raised to 278 and the total attributed to abortion to 464, or including those associated with abortion, 554. If it is further desired to make the 1929, 1930 and 1931 totals comparable with the 1932 figures corrected in this way, the sepsis deaths having no statement numbered 637, 670 and 537 in those years and 4 per cent. of these numbers should be transferred to the abortion totals in Table LXI. The 63 deaths mentioned in the note below Table LXI should also be omitted from the "associated with abortion" total in 1929. Relating these corrected totals of deaths attributed to or associated with abortion to the populations of women aged 15–45 in each year 1929 to 1932, the successive rates per million living are 58·0, 60·7, 53·4, 56·5. Deducting the corrected abortion deaths from all deaths attributed to puerperal causes, the residual

Table LXII.—Distribution throughout England and Wales of Mortality of Women in Childbirth, distinguishing Septic and Other Causes, and of Prevalence of Puerperal Fever and Pyrexia, 1932.

	Per 1,000 Live Births.					Per 1,000 Live and Still Births.					"Puerperal Fever" Cases per 100 Deaths.
	Deaths.			Cases.		Deaths.			Cases.		
	Sepsis.	Other causes.	All causes.	"Fever."	"Pyrexia."	Sepsis.	Other causes.	All causes.	"Fever."	"Pyrexia."	
England and Wales ..	1·61	2·60	4·21	3·5	8·9	1·55	2·49	4·04	3·3	8·5	214
South-East	1·49	2·10	3·59	3·4	9·7	1·44	2·03	3·47	3·3	9·4	226
Greater London ..	1·51	1·78	3·29	3·3	11·0	1·47	1·72	3·19	3·2	10·6	220
Remainder of South-East	1·44	2·62	4·06	3·4	7·7	1·39	2·53	3·92	3·3	7·4	236
North	1·79	2·83	4·62	3·5	8·7	1·71	2·70	4·40	3·4	8·3	198
North I	2·19	2·81	5·00	3·2	9·4	2·09	2·69	4·78	3·0	9·0	145
„ II	1·96	2·27	4·23	2·7	7·5	1·87	2·18	4·05	2·6	7·1	137
„ III	2·10	2·86	4·96	4·4	7·9	2·00	2·73	4·73	4·2	7·5	210
„ IV	1·40	2·95	4·35	3·4	9·1	1·34	2·80	4·14	3·3	8·6	244
Midland	1·57	2·39	3·96	3·5	8·1	1·50	2·30	3·80	3·3	7·8	221
Midland I	1·69	2·30	3·99	3·7	8·7	1·62	2·21	3·83	3·6	8·4	221
„ II	1·34	2·57	3·92	3·0	6·9	1·28	2·47	3·75	2·9	6·6	222
East	1·46	2·28	3·75	3·1	7·6	1·40	2·19	3·60	2·9	7·3	210
South West	1·29	2·76	4·05	2·9	11·1	1·24	2·64	3·88	2·8	10·7	227
Wales	1·79	4·48	6·26	4·0	7·2	1·69	4·23	5·91	3·8	6·8	226
Wales I	1·80	4·64	6·44	4·4	7·4	1·70	4·38	6·07	4·2	7·0	247
„ II	1·75	3·99	5·74	2·8	6·5	1·66	3·78	5·44	2·7	6·2	161
County Boroughs* ..	1·66	2·55	4·21	4·5	9·8	1·59	2·44	4·03	4·3	9·4	270
Other Urban Districts*	1·66	3·16	4·83	2·9	7·8	1·59	3·02	4·61	2·8	7·4	177
Rural Districts*	1·57	2·71	4·28	2·6	6 8	1·50	2·60	4·10	2·5	6·5	165
Greater London Admin. County	1·33	1·66	2·99	3·5	12·0	1·29	1·60	2·90	3·4	11·6	265
Greater London Outer Ring ..	1·71	1·91	3·62	3·1	9·9	1·65	1·85	3·50	3·0	9·5	183

* Excluding Greater London.

puerperal rates, excluding abortion, per 1,000 live and still births in the 4 years 1929 to 1932 are 3·49. 3·46, 3·27, 3·31 respectively, or, adding the associated deaths, 4·74, 4·49, 4·53 and 4·29 respectively.

It appears from Table LXIV that in 1932 as in 1931 the ratio of post-abortive sepsis, No. 140, to total puerperal sepsis mortality (140,145) increases with advancing age, being 21 per cent. at 15–30 and 32 at ages 30 and upwards in the country as a whole. The percentage of all deaths from abortion (excluding the criminal cases) which is due to sepsis diminishes with age, being 87 at 15–25, 71 at 25–35 and 60 at ages 35 and upwards.

The distribution throughout the country of the mortality ascribed to childbirth is outlined in Table LXII. Sepsis mortality was higher in the towns than the rural districts, but unlike the preceding year, the London rate was low in comparison with other areas, this rate, which had risen from 1·31 in 1927 to 2·01 in 1931, falling to 1·33. The sepsis rate was highest in North I, III and II, Wales coming next in order; the South-West gave the lowest rate.

Mortality from non-septic causes was highest in the small towns and lowest in London, the latter rate being the lowest in the table, as in 1931. Wales registered the highest rates, followed by North IV, II and I. The range of regional variation was, as usual, less for septic than non-septic causes.

Table LXIII compares the mortality in 1932 with that in 1926–30 and 1931 from the constituent headings of the group of puerperal causes other than abortion, and affords the means of

Table LXIII.—Puerperal Mortality from various Causes, per 100,000 Live births, 1911–20, 1926–30, 1931 and 1932.

List No.		1911–20.	1926–30.	1931.	1932.
142	Ectopic gestation	9	13	12	14
143	Other accidents of pregnancy ..	?	3	4	3
144*a*	Placenta prævia	55	24	22	25
b	Other puerperal hæmorrhage ..		26	24	22
146	Puerperal albuminuria & convulsions	79	79	59	61
147	Other toxæmias of pregnancy ..	?	8	21	25
148*a*	Puerperal phlegmasia alba dolens not returned as septic.	7	4	7	7
b	Puerperal embolism & sudden death	30	25	22	25
149	Other accidents of childbirth ..	?	41	47	47
150(1)	Puerperal insanity	4	3	2	4
(2)	Puerperal diseases of breast.. ..	1	1	2	2
(3)	Childbirth (unqualified)	?	6	4	6
	Total non-septic causes other than abortion.	246	234	227	241
145	Puerperal sepsis not returned as abortion.	?	137	130	119

analysing the extent to which these causes individually contribute to the total puerperal mortality. Where possible the corresponding rates for 1911–20 are also shown.

Most of the non-septic causes register increases over the previous year, especially the toxæmic conditions, and albuminuria, puerperal embolism and insanity, ectopic gestation and placenta prævia. The last two are in part offset by declines in the less clearly defined groups, and may be partly due to more precise certification. The puerperal sepsis rate, excluding post-abortive sepsis, shows a decline of 13 per cent. from the mean rate for 1926–30.

Table LXIV gives particulars of all deaths ascribed to the puerperal state with a statement of the civil condition and age of the deceased.

Table LXIV.—Deaths of Women Classed to Pregnancy and Childbearing—1932.

Cause of Death.	All Ages.	Civil Condition.			Ages.						
		Single.	Married.	Widowed.	15–	20–	25–	30–	35–	40–	45 and upwards
140. Post-abortive sepsis*	262	38	219	5	7	38	51	76	65	23	2
Streptococcal infection	7	—	7	—	—	1	1	3	2	—	—
Pneumococcal infection	2	—	2	—	—	2	—	—	—	—	—
Staphylococcal infection	1	—	1	—	—	—	—	1	—	—	—
Gas gangrene	1	1	—	—	—	1	—	—	—	—	—
Septic phlegmasia alba dolens, phlebitis, thrombosis.	6	2	4	—	1	—	—	1	2	2	—
Septic pneumonia	4	2	2	—	1	—	1	2	—	—	—
Septic endocarditis	6	1	5	—	—	2	1	1	2	—	—
Toxic myocarditis	1	—	1	—	—	—	1	—	—	—	—
Septicæmia	137	16	119	2	1	15	31	40	37	13	—
Sepsis	11	—	10	1	—	1	1	5	3	1	—
Septic intoxication, sapræmia	5	—	5	—	—	—	—	3	2	—	—
Pelvic peritonitis	4	2	2	—	—	—	1	1	2	—	—
Peritonitis	34	11	22	1	3	5	9	9	6	1	1
Salpingitis	3	—	3	—	—	—	—	—	—	2	1
Metritis	4	—	4	—	—	1	—	—	2	1	—
Endometritis	12	1	11	—	1	1	1	4	4	1	—
Parametritis	3	—	3	—	—	1	—	2	—	—	—
Pyæmia	4	—	3	1	—	2	—	—	2	—	—
Pelvic cellulitis	6	—	6	—	—	1	1	2	—	2	—
Pelvic abscess	4	1	3	—	—	1	2	1	—	—	—
Ovarian abscess	1	—	1	—	—	—	1	—	—	—	—
Tetanus	1	—	1	—	—	—	—	1	—	—	—
"Puerperal fever"	5	1	4	—	—	4	—	—	1	—	—
141. Abortion not returned as septic*	117	9	106	2	1	6	22	29	41	15	3
(1) Hæmorrhage following abortion.	105	6	97	2	—	6	19	25	37	15	3
(2) Without record of hæmorrhage.	12	3	9	—	1	—	3	4	4	—	—
142. Ectopic gestation	83	4	77	2†	—	3	19	27	22	11	1
143. Other accidents of pregnancy	19	2	17	—	—	3	6	4	4	2	—
Hydatidiform mole	7	2	5	—	—	1	3	2	1	—	—
Carneous mole	1	—	1	—	—	—	—	—	—	1	—
Hydramnios	2		2	—	—	—	1	—	1	—	—
Retroverted gravid uterus	2	—	2	—	—	—	—	—	2	—	—
"Pregnancy" unqualified	7	—	7	—	—	2	2	2	—	1	—
144. Puerperal hæmorrhage	291	7	280	4	7	21	62	71	67	56	7
(*a*) Placenta prævia	156	3	150	3	2	8	21	37	46	40	2
(*b*) Other puerperal hæmorrhage.	135	4	130	1	5	13	41	34	21	16	5
Adherent or retained placenta.	42	2	40	—	2	4	17	12	5	1	1
Accidental hæmorrhage	19	—	19	—	—	—	4	2	5	7	1
Post-partum hæmorrhage	74	2	71	1	3	9	20	20	11	8	3

* Besides these 262 deaths from post-abortive sepsis and 117 deaths from abortion not returned as septic, there were 69 (Single 20, Married 45, Widowed 3, and Divorced 1) others from criminal abortion (*see* Table 25, Part I).

† Including 1 divorced woman.

Table LXIV—*continued.*

Cause of Death.	All Ages.	Civil Condition.			Ages.						
		Single.	Married.	Widowed.	15	20–	25–	30–	35–	40–	45 and upwards
145. Puerperal sepsis not returned as post-abortive.	729	38	689	2	21	122	228	179	117	51	11
(*a*) Puerperal septicæmia and pyæmia.	729	38	689	2	21	122	228	179	117	51	11
Scarlet fever	7	—	7	—	—	1	—	2	4	—	—
Streptococcal infection	45	—	45	—	—	6	13	17	6	3	—
Pneumococcal infection	1	—	1	—	—	—	1	—	—	—	—
Staphylococcal infection	3	—	3	—	—	—	2	1	—	—	—
Bacillus coli infection	6	—	6	—	—	—	3	2	—	1	—
Septic phlegmasia alba dolens, phlebitis, thrombosis.	25	1	24	—	2	1	3	6	7	3	3
Septic pneumonia	12	—	12	—	—	1	3	3	3	2	—
Septic endocarditis	8	—	8	—	—	1	4	2	1	—	—
Septicæmia	300	15	284	1	9	46	105	76	45	16	3
Sepsis	70	5	64	1	1	12	18	18	9	10	2
Septic intoxication, sapræmia.	34	4	30	—	2	3	8	9	9	3	—
Pelvic peritonitis	9	1	8	—	1	1	3	1	1	2	—
Peritonitis	66	4	62	—	1	13	25	12	10	4	1
Salpingitis	10	2	8	—	—	3	1	4	2	—	—
Endometritis	32	—	32	—	1	3	13	9	5	1	—
Parametritis	7	1	6	—	2	2	2	1	—	—	—
Erysipelas	3	—	3	—	—	1	1	1	—	—	—
Pyæmia	17	—	17	—	—	6	4	2	4	—	1
Pelvic cellulitis	7	1	6	—	—	2	4	—	1	—	—
Cellulitis	5	3	2	—	—	2	1	1	—	1	—
Pelvic abscess	6	—	6	—	—	2	3	1	—	—	—
Other specified septic conditions.	4	—	4	—	—	—	1	2	—	1	—
"Puerperal fever"	52	1	51	—	2	16	10	9	10	4	1
(*b*) Puerperal tetanus	—	—	—	—	—	—	—	—	—	—	—
146. Puerperal albuminuria and convulsions.	373	24	346	3	22	76	86	79	74	32	4
147. Other toxæmias of pregnancy	151	13	137	1	6	24	35	44	26	14	2
Chorea	7	2	5	—	2	3	—	2	—	—	—
Toxæmia of pregnancy	93	8	85	—	1	15	24	27	16	10	—
Puerperal toxæmia	3	—	3	—	—	1	—	2	—	—	—
Uncontrollable vomiting	48	3	44	1	3	5	11	13	10	4	2
148. Puerperal phlegmasia alba dolens, embolism and sudden death.	200	5	195	—	2	23	45	45	51	33	1
(*a*) Puerperal phlegmasia alba dolens, not returned as septic.	46	2	44	—	1	7	7	11	14	6	—
(*b*) Puerperal embolism and sudden death.	154	3	151	—	1	16	38	34	37	27	1
149. Other accidents of childbirth	286	12	271	3	3	42	69	86	60	25	1
Contracted pelvis	64	4	60	—	1	11	17	23	8	4	—
Craniotomy	2	—	2	—	—	1	1	—	—	—	—
Instrumental delivery	12	1	11	—	—	2	4	5	1	—	—
Malpresentation	34	—	34	—	—	—	6	11	15	2	—
Version	1	—	1	—	—	—	1	—	—	—	—
Abnormal fœtus	8	1	7	—	—	—	2	4	1	1	—
Difficult and prolonged labour	79	3	75	1	—	13	18	21	20	7	—
Cæsarean section (reason unstated)‡.	9	—	9	—	—	1	2	—	5	1	—
Rupture of uterus	27	—	26	1	—	4	4	6	8	4	1
Laceration of cervix	1	1	—	—	—	1	—	—	—	—	—
Prolapse of cervix uteri	1	—	1	—	—	—	—	1	—	—	—
Tear of vagina	1	—	1	—	—	—	1	—	—	—	—
Rupture of vagina	1	—	—	1	—	—	—	1	—	—	—
Tear of perineum	1	—	1	—	—	—	1	—	—	—	—
Trauma of bladder	1	—	1	—	—	—	—	1	—	—	—
Inversion of uterus	11	—	11	—	1	6	3	1	—	—	—
Subinvolution of uterus	1	—	1	—	—	—	—	—	—	1	—
Uterine inertia	10	—	10	—	1	2	3	4	—	—	—
Adherent and retained placenta	11	1	10	—	—	—	4	4	1	2	—
Precipitate labour	3	1	2	—	—	—	1	1	—	1	—
Stillbirth	3	—	3	—	—	—	—	3	—	—	—
Twin birth	5	—	5	—	—	1	1	—	1	2	—

‡ In addition, Cæsarean section was stated to have been performed in the cases of 107 deaths included under other headings in this table—ante partium hæmorrhage 2, Placenta prævia 13, accidental hæmorrhage 4, puerperal albuminuria and convulsions 10, toxæmia of pregnancy 5, contracted pelvis 46, malpresentation 1, difficult labour 22, ruptured uterus 2, uterine inertia 1, removal dead fœtus 1.

Table LXIV—*continued.*

Cause of Death.	All Ages.	Civil Condition.			Ages.						
		Single.	Married.	Widowed.	15–	20–	25–	30–	35–	40–	45 and upwards
150. Other or unspecified conditions of the puerperal state.	76	3	72	1	1	7	26	18	14	10	—
(1) Puerperal insanity ..	24	2	22	—	1	5	8	4	2	4	—
(2) Puerperal diseases of the breast.	13	—	12	1	—	2	4	3	3	1	—
(3) Childbirth (unqualified) ..	39	1	38	—	—	—	14	11	9	5	—
With secondary causes as follow :—											
Anæmia	8	—	8	—	—	—	4	2	2	—	—
Acute endocarditis ..	2	—	2	—	—	—	1	1	—	—	—
Myocarditis	3	—	3	—	—	—	1	1	—	1	—
Bronchitis	4	1	3	—	—	—	—	3	1	—	—
Pneumonia N.O.D. ..	7	—	7	—	—	—	4	2	—	1	—
Broncho-pneumonia ..	6	—	6	—	—	—	2	—	1	3	—
Pleurisy	2	—	2	—	—	—	1	1	—	—	—
Without stated secondary cause.	7	—	7	—	—	—	1	1	5	—	—
Total	2,587	—	—	—	70	365	649	658	541	272	32
Single	—	155	—	—	33	44	24	27	19	8	1
Married ..	—	—	2,409	—	37	320	623	628	513	258	30
Widowed ..	—	—	—	23†	—	1	2	3	9	6	1

It may be gathered from this table that, excluding all deaths attributed to abortion, septic or otherwise, the ratio of sepsis mortality to that from all puerperal causes is 37 per cent. at ages 15–25, 36 at 25–35 and 26 at 35 and upwards. The proportion of single women is greatest for post-abortive sepsis, 14·5 per cent., and non-septic abortion (7·7), and least for phlegmasia alba dolens, embolism and sudden death (2·5) and puerperal hæmorrhage (2·4).

The records of cases of puerperal fever and pyrexia notified are collated with those of births and of deaths from this cause in Table LXII. The proportion to live births of puerperal fever cases notified rose from 30 in 1927 to 40 in 1930, and fell to 35 per 10,000 in 1932. This proportion may have been affected by the compulsory notification of " puerperal pyrexia," which was in force throughout the period, having commenced on October 1, 1926. The records of notifications under both headings will be found in Tables 28–29 and the ratio both to live births and to total live and still births are shown in Table LXII. The highest fever rates were recorded for North III and Wales I, but the pyrexia rates followed a very different sequence, being highest in the South West and Greater London. The fever rate was lowest in North II, and the pyrexia rate in Wales II.

The proportion of puerperal fever cases to sepsis deaths, shown for 1932 by regions in Table LXII, is lowest in North II and I and in Wales II, and highest in Wales I, North IV and the remainder of the South East, the range of variation in the regions being from 137 to 247 cases notified per 100 deaths. In London the ratio was 265.

Table LXV shows the causes of deaths stated to have been complicated by the existence of the puerperal state. The largest numbers in this table are—lobar pneumonia 77, mitral disease 73, respiratory tuberculosis 58, influenza 55, other or unspecified valvular disease 53 and chronic nephritis 50. For heart disease of all forms the total is 202. These deaths are of much the same type year after year, heart disease, pneumonia (conceivably septic), and influenza when epidemic, generally figuring prominently in the table. Of 48 deaths of females at all ages from acute yellow atrophy of the liver, and 34 at 15–45 (Table 21), 27 were stated to have been associated with pregnancy or childbearing.

Table LXV.—Deaths of Women not classed to Pregnancy and Childbearing, but returned as associated therewith—1932.

Cause of death.	All Ages.	Ages.						
		15–	20–	25–	30–	35–	40–	45 and upwards.
7 Measles	1	—	—	1	—	—	—	—
8 Scarlet fever	2	—	1	1	—	—	—	—
10 Diphtheria	1	—	—	—	—	1	—	—
11 Influenza	55	—	5	8	16	16	10	—
15 Erysipelas	1	—	—	1	—	—	—	—
18 Cerebro-spinal fever	4	—	1	2	—	1	—	—
23 Tuberculosis of the respiratory system	58	2	13	15	20	7	1	—
24–32 Other forms of tuberculosis	11	—	5	1	2	2	1	—
34 Syphilis	3	—	1	1	—	1	—	—
45–53 Cancer	10	—	—	1	2	4	3	—
54 (*a*) Tumours of female genital organs	14	—	1	2	4	4	3	—
54 (*b*) & 55 (*b*) Tumours of other sites	3	—	—	1	2	—	—	—
56 Rheumatic fever	5	—	2	—	2	—	1	—
57 (2) Rheumatoid arthritis, Osteo-arthritis	2	—	—	—	—	1	1	—
59 Diabetes	4	—	1	1	1	1	—	—
63 (1) Rickets	1	—	—	—	1	—	—	—
66 (a) Goitre	1	—	—	—	—	—	—	1
66 (*b*) Exophthalmic goitre	7	—	—	4	—	3	—	—
70 (*a*) Puerpural hæmorrhagica	1	—	1	—	—	—	—	—
71 (*a*) Pernicious anæmia	21	—	1	6	3	10	1	—
71 (*b*) (1) Splenic anæmia	1	—	—	—	1	—	—	—
71 (*b*) (2) Anæmia	1	—	—	—	—	1	—	—
78 (*b*) Encephalitis	1	—	1	—	—	—	—	—
82 (*a*) Cerebral hæmorrhage	2	—	—	—	2	—	—	—
85 Epilepsy	6	—	2	—	—	3	1	—
89 (*a*) Otitis media	1	—	—	1	—	—	—	—
91 (1) Malignant endocarditis	8	—	2	4	—	1	—	1
91 (2) Acute endocarditis	1	—	1	—	—	—	—	—
92 (2) Mitral valve disease	73	—	14	15	18	15	10	1
92 (3, 4, 5) Other or unspecified valve disease	53	—	6	15	17	8	7	—
93 (*b*) (1) Fatty heart	5	—	—	—	1	1	3	—
93 (*b*) (3) & 93 (*c*) Other or unspecified myocardial disease	40	1	1	7	12	12	6	1

Table LXV—*continued.*

Cause of death.	All Ages.	Ages. 15–	20–	25–	30–	35–	40–	45 and upwards.
94 Diseases of the coronary arteries, angina pectoris	2	—	—	—	1	1	—	—
95 (*a*) & 95 (*b*) (2) Other diseases of the heart	20	—	3	2	5	7	3	—
98 (*b*) Raynaud's disease	1	—	—	—	—	1	—	—
100 (1) Varicose ulcers	1	—	—	—	—	—	1	—
106 Bronchitis	6	—	2	2	—	2	—	—
107 Broncho-pneumonia	19	—	2	3	7	6	1	—
108 Lobar pneumonia	77	2	10	18	16	19	12	—
109 Pneumonia (not otherwise defined)	16	1	3	2	3	5	2	—
110 (1) Empyema	2	—	—	—	—	2	—	—
110 (2) Other pleurisy	5	—	1	1	1	2	—	—
111 (2) Pulmonary embolism	1	—	—	—	—	1	—	—
112 Asthma	10	—	2	2	5	1	—	—
115 (1) Diseases of the teeth and gums	3	—	—	2	—	1	—	—
115 (3) Diseases of the tonsils	3	—	1	—	2	—	—	—
117 Ulcer of the stomach or duodenum	2	—	—	1	—	—	1	—
118 (2) Acute dilatation of the stomach	1	—	—	1	—	—	—	—
119 & 120 (*a*) (2) Acute gastro enteritis	1	—	1	—	—	—	—	—
119 & 120 (*b*) Ulceration of the intestines	2	—	2	—	—	—	—	—
121 Appendicitis	6	—	2	3	—	1	—	—
122 (*a*) (1) Strangulated hernia ..	2	—	—	—	1	1	—	—
122 (*b*) Intestinal obstruction	40	1	2	16	9	7	5	—
123 (1) Intestinal paralysis	1	—	—	1	—	—	—	—
124 (*b*) Cirrhosis of the liver	1	—	—	—	—	1	—	—
125 (1) Acute yellow atrophy of liver ..	27	—	6	9	5	5	2	—
126 Biliary colic	1	—	—	—	—	—	1	—
127 (1) Cholecystitis without record of biliary calculi	4	—	—	1	1	—	2	—
128 Acute hæmorrhagic pancreatitis	1	—	—	—	—	1	—	—
131 Chronic nephritis	50	—	3	8	7	19	11	2
133 (*a*) Pyonephrosis	1	1	—	—	—	—	—	—
134 (*a*) Renal calculus	1	—	—	—	—	1	—	—
135 (*a*) Cystitis	1	—	—	1	—	—	—	—
157 (*c*) Congenital malformation of heart	2	—	1	—	1	—	—	—
163–198 Violence	6	—	2	3	—	—	1	—
Total	713*	8	102	163	168	176	90	6
Single	38	2	15	7	9	4	1	—
Married	670	6	87	156	157	169	89	6
Widowed	5	—	—	—	2	3	—	—

* Of these 713 deaths, 168 were stated to be associated with pregnancy, 90 with abortion, 70 with premature delivery, 4 with delivery at full term, and 381 with childbirth.

Seasonal and Secular Changes in Puerperal Mortality and in that from Septic Diseases.—Table LXVI compares the relative changes in each year since 1921 in mortality per 1,000 live births from puerperal sepsis with the relative changes in the standardized death

rates of females from certain other disease groups mainly characterised by streptococcal or staphylococcal infection and for which rates are shown in Table 8. These are (1) erysipelas, (2) a group comprising carbuncle, boil, cellulitis, acute abscess, acute infective osteomyelitis and periostitis (Nos. 152, 153, 155 (1) in 1921–30 and Nos. 151, 152, 154 in 1931–2), and (3) diseases of the ear and mastoid, this group of deaths being almost entirely due to pyogenic infection. Scarlet fever is also included. The standardized rates from these causes have been expressed as percentages of the rate in 1921.

Table LXVI.—Mortality from Puerperal Sepsis compared with that from Diseases mainly of Streptococcal and Staphylococcal origin, 1921–1932.

	Rates per cent. of the rate in 1921											
	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.
Puerperal sepsis (per 1,000 live births).	100	101	94	101	113	116	114	130	130	139	120	117
Standardized death rates (Females)												
Erysipelas	100	82	82	82	100	88	94	94	112	118	118	124
Carbuncle, boil, cellulitis and infective osteomyelitis.	100	91	95	100	109	118	114	118	132	118	127	123
Ear and mastoid disease ..	100	94	90	84	94	87	100	106	110	113	103	110
Scarlet fever	100	110	73	71	78	49	46	49	56	63	49	49

Puerperal sepsis mortality per cent. of that in 1921 fell to a minimum of 94 in 1923, increased to 139 in 1930 and has since declined to 117. Erysipelas mortality fell to its lowest level of 82 in 1922–24 and has increased since to 124. Mortality from septic infections of the skin and bones fell to a minimum of 91 in 1922 and then rose to 132 by 1929, with a slight fall since. Diseases of the ear and mastoid registered their lowest relative mortality, 84, in 1924, and then showed an increase to 113 by 1930 followed by a fall. These three groups, in common with puerperal sepsis, manifested a rising mortality from the years about 1923 to the years round about 1930, and in the case of erysipelas this continued in 1932. Scarlet fever mortality, however, reached its lowest level in 1927, followed by a rise to 1930 and a subsequent fall.

In Table LXVII the mean seasonal variation in puerperal mortality, divided into its main constituent groups, is shown for the 5-year period from December 1925 to November 1930, together with that for certain other diseases. The rates for the 3 separate groups of non-septic causes usually associated with a full-time birth, and for puerperal sepsis (including of necessity post-abortive sepsis since deaths from this cause were not distinguished prior to 1931 in monthly tabulations), and for all puerperal causes combined, shown in the upper half of the table, have been obtained by relating the deaths which occurred in December, January and February (Table 18 in 1926–30) to the live births registered in the January–March quarter (Table D), and so on.

The justification for this is that the mean interval between the birth and maternal death is only a few days, whereas between the birth and its date of registration the mean interval is about a month, that is to say, the number of births registered in the first quarter approximately represents the number of births which occurred in the months December to February, and similarly for the other quarters. The rates are therefore corrected, as far as it is possible to correct them, for the seasonal fluctuation in birth rate.

Table LXVII.—Seasonal Variation in Mortality from Puerperal Causes and from Diseases mainly of Streptococcal or Staphylococcal origin. Dec. 1925–Nov. 1930.

International List No.*		Dec.–Feb.	March–May.	June–August.	Sept.–Nov.	Dec.–Feb.	March–May.	June–August.	Sept.–Nov.
		Rate per million live births (registered in the quarter commencing 1 month later).				Rate per cent. of that in whole period.			
143–50	All puerperal causes ..	4430	4402	4073	4160	104	103	95	97
144	Puerperal hæmorrhage ..	503	517	487	496	100	103	97	99
145	Other accidents of childbirth.	450	486	480	475	95	103	101	100
147–50	Other causes (not sepsis)	1074	1140	1183	1102	95	101	105	98
144, 145 147–50	Causes other than abortion, accidents of pregnancy or sepsis.	2027	2143	2150	2073	97	102	102	99
146	Puerperal sepsis.. ..	1979	1851	1487	1544	115	108	87	90
		Mean number of deaths per day.				Daily mortality per cent. of that in whole period.			
8	Scarlet fever	2·39	2·05	1·32	1·51	132	113	73	83
21	Erysipelas	3·25	3·08	1·76	2·02	129	122	70	80
41	Purulent infection, septicæmia.	2·37	2·33	1·73	1·89	114	112	83	91
86	Ear and mastoid disease	3·94	4·02	3·27	3·29	109	111	90	91
152	Carbuncle, boil	1·28	1·18	1·14	1·28	105	96	94	105
153	Cellulitis, etc.	2·39	2·12	1·50	1·70	124	110	78	88
155 (1)	Infective osteomyelitis ..	1·39	1·37	1·20	1·27	107	105	92	97
	Total of above causes	17·02	16·14	11·93	12·96	117	111	82	89
	Epidemic diseases† ..	123·0	115·6	33·4	35·5	160	150	43	46
97–107	Respiratory diseases ..	316·7	229·2	92·6	119·6	167	121	49	63
	All other causes.. ..	1179·1	1076·8	908·7	967·2	114	104	88	94
143 (*a*)	Abortion (not septic) ..	·231	·217	·165	·224	111	104	79	107
143 (*b*) (*c*)	Ectopic gestation and other accidents of pregnancy.	·548	·548	·626	·703	90	90	103	116

* As used in 1926–30. † Excluding scarlet fever and erysipelas.

Deaths from abortion, ectopic gestation and other accidents of pregnancy, having no necessary association with the births occurring in the same months, have not been related to the births, but have been dealt with in the lower half of the table on the basis of the mean number of deaths per day in the successive aggregates of 3 months December, January, February, and so on, along with the other non-puerperal causes shown for comparison. When each rate is expressed as a percentage of the mean rate in the whole 5-year

period, the rates by either method, shown in the right-hand portions of the table, may be regarded as comparable indices of the intensity of seasonal variation.

For all puerperal causes together this variation is slight, from 4 per cent. above average in the winter to 5 per cent. below in the summer. The non-septic causes usually associated with full term confinement (that is, after excluding sepsis, abortion, ectopic gestation and other accidents of pregnancy as distinct from accidents of childbirth) show no seasonal variation of significance.

Non-septic abortion deaths showed in this period a high degree of seasonal variation, being minimal in summer and maximal in winter, and the sequence corresponded with that of the marriage rate about 5 months earlier. Thus during the 5 years from July 1925 to June 1930 the marriages in the four successive quarters from mid year to mid year numbered 122, 104, 64, 109 per cent. of those in the mean quarter, and for abortion deaths in 3 monthly periods centred 5 months later the corresponding ratios were, as shown in Table LXVII, 111, 104, 79, 107. For the ten years from March 1921 to February 1931 the ratios, based upon more adequate numbers of deaths (878 in all), are modified to 109, 109, 82, 102. Of non-septic abortion deaths over 90 per cent. occur in the married, and such correspondence as the seasonal swing of these rates shows with that of the marriage rate may be more than fortuitous.

Ectopic gestation and other accidents of pregnancy show in combination a high rate in the autumn, the total deaths on which the rates are founded being 1,107.

Puerperal sepsis shows a seasonal change closely akin to that for mortality from other diseases due to infection mainly by septic organisms, the percentage ratios to the yearly mortality being, for the seasons starting in December, March, June and September respectively, 115, 108, 87, 90 for puerperal sepsis and 117, 111, 82, 89 for the group comprising scarlet fever, erysipelas, purulent infection and septicæmia, ear and mastoid disease, carbuncle and boil, cellulitis and acute infective osteomyelitis or periostitis. The group of epidemic diseases, excluding scarlet fever and erysipelas, manifests a seasonal swing of much higher amplitude and the same is true of respiratory disease. The residual group of all causes other than epidemic, septic or respiratory also shows an average seasonal variation similar to that of puerperal and other sepsis, but of rather smaller amplitude.

Poisoning by solid, liquid or gaseous substances.—Deaths resulting from causes included under this heading have, since 1921, been tabulated along with other deaths from "violent" causes with specification, either in the tables themselves or in footnotes, of the poisonous or corrosive substance or irrespirable gas held to be responsible (Table 22 in 1921–30, Table 25 in 1931–32). Prior to 1931 violent deaths were classified, in accordance with the verdict

at the inquest, as suicide, homicide or accident, all deaths where suicide or homicide was unproven being included with the accidental group, but since 1931 these " open verdict " deaths have been separated as " violent deaths of unstated nature " (No. 195 in the International List).

In Table LXVIII an attempt has been made to classify the suicidal and accidental deaths caused by poisonous or corrosive substances or gases in four triennial periods 1921–23, 1924–26, 1927–29, 1930–32, separating the principal poisons and analysing the group of analgesic and narcotic drugs under a number of sub-headings. In this table deaths occurring in association with the administration of anæsthetics for surgical purposes are, of course, not included, but they have been analysed over the same period of years under comparable headings in Table LXXIII. There were also during the twelve years 41 deaths due to abortion recorded as produced by drugs, which have not been included in the table. The suicidal deaths correspond to those assigned to Nos. 165–167 of the International List during 1921–30, and Nos. 163–164 from 1931 onwards; the accidental deaths correspond to Nos. 177, 181 during 1921–30 and Nos. 178–179 with part of No. 195 from 1931 onwards. Homicidal deaths are also shown in the table in parentheses. The " open verdict " fatalities are included under the accident heading, that is to say, they are presumed for the purpose of this analysis not to have been suicidal or homicidal.

Deaths from alcoholism or *chronic* poisoning by organic or mineral substances, which are assigned to Nos. 75–77 of the International List of Causes (Nos. 66–68 in 1921–30), are not included in the table. The alcohol deaths shown are those attributed to acute accidental poisoning without suggestion of habitual alcoholism. The deaths of males attributed to alcoholism in the four triennial periods defined in the table numbered 348, 265, 243, 150 respectively, and of females 149, 127, 107, 120. From chronic poisoning by other organic substances deaths of males numbered 12, 15, 20, 18, and of females 13, 10, 10, 7. From chronic occupational lead poisoning deaths of males numbered 150, 119, 137, 96, and of females 11, 8, 7, 6, and from other chronic poisoning by mineral substances male deaths were 12, 10, 9, 8 and female deaths 3, 4, 2, 2.

Comparing 1921–23 with 1930–32, the mean standardized suicidal rate rose from 132 to 154 per million for males, and from 44 to 59 for females (Table 8). Suicides by means of solid or liquid poisons increased in number from 1,225 in the first period to 2,168 in the last, and by means of gaseous poisons from 1,556 to 4,609. In the same interval suicides by other means increased no more rapidly than the population, from 8,803 to 9,164, corresponding to a mean crude death rate of 77 per million in each period. The increased resort to poisons, and in such large measure to coal gas, as convenient means of suicide does not therefore represent a

Table LXVIII.—Suicidal, Homicidal and Accidental Deaths by means of Poisonous and Corrosive Substances with detailed Analysis of those due to Analgesic and Narcotic Drugs, 1921–32.

NOTE.—Deaths from alcoholism or *chronic* poisoning by organic or mineral substances (Nos. 75–77 of International List), or from abortion attributed to drugs taken or administered for that purpose, are not included in this Table. For these *see* text. Food poisoning deaths (No. 177) and deaths under anæsthetics administered for surgical purposes are also not included here. For Deaths under Anæsthetics *see* Table LXXIII.

Poison.	Sex.	Suicide. Also Homicide (in brackets).				Accident (including "Open Verdicts.")			
		1921–1923.	1924–1926.	1927–1929.	1930–1932.	1921–1923.	1924–1926.	1927–1929.	1930–1932.
Solid or Liquid Poisons and Corrosive Substances.									
Acetic acid	M.	2	2	2	1	1	1	1	—
	F.	2	4	1	3	2	1	—	—
Ammonia	M.	19	29	40	36	15	9	8	10
	F.	28	26	45	42	9	8	11	7
Antimony chloride	M.	—	2	3	3	—	1	—	1
	F.	—	—	—	—	—	—	—	—
Arsenic compounds	M.	5	5 (1)	15	11	4	2	4	4
	F.	5 (2)	3	6 (2)	10	—	2	2	4
Atophan	M.	—	—	—	—	—	1	—	5
	F.	—	—	—	—	—	1	4	1
Carbolic acid	M.	87 (1)	75 (1)	73	117	16	10	10	15
	F.	63	65 (1)	78	78	14	11	8	9
Caustic alkali	M.	—	—	—	2	4	2	6	7
	F.	1	—	—	1	3	1	1	—
Copper sulphate	M.	1	1	3	1	—	—	—	1
	F.	—	—	3	1	—	—	—	—
Cyanides not included below	M.	4	6	16	8	2	4	3	—
	F.	—	—	1	1 (1)	—	—	—	—
Hydrochloric acid	M.	114	94	116	100 (1)	17	17	8	7
	F.	96	86	77	57	13	14	6	7
Iodine	M.	1	2	2	3	—	2	1	—
	F.	—	5	3	1	—	—	2	3
Lead or lead salts†	M.	—	—	—	1	—	2	—	—
	F.	—	—	—	—	1	1	1	—
Mercury and its compounds	M.	8	9	10	8	3	3	3	5
	F.	12	9	13	7	4	6	—	4
Nicotine and preparations	M.	2	9	10	12	1	2	—	—
	F.	1	1	2	3	1	2	1	—
Nitric acid	M.	8	8	3	—	—	2	—	1
	F.	2	3	1	1	1	—	1	—
Oxalate of potassium	M.	—	—	1	—	—	—	1	—
	F.	3	2	1	1	—	—	—	—
Oxalic acid	M.	45	40	30 (1)	32	2	4	5	2
	F.	83 (1)	70	64	50	5	3	6	5
Permanganate of potash	M.	—	1	1	—	1	2	1	1
	F.	1	2	—	2	—	—	—	—
Phosphorus	M.	5	5	9	9	—	3	1	1
	F.	5	2	6	12 (1)	1	—	1	3
Potassium chromate, bichromate	M.	4	—	7	1	2	2	—	2
	F.	1	2	—	—	—	—	—	—
Potassium cyanide	M.	99 (1)	75	75	147	7	4	6	10
	F.	11 (3)	12 (1)	6	19 (4)	2	2	1	3
Prussic acid*	M.	60	59	77	74	4	2	7	3
	F.	2	3	5	6	—	3	—	1
Quinine or quinine compounds	M.	—	—	—	—	1	1	—	—
	F.	1	—	2	—	—	1	1	2
Strychnine	M.	21	25 (1)	22	13	7	14	9	8
	F.	22	13	9	14	8	11	13	7
Sulphuric acid	M.	6	7	10	12	3	—	1	5
	F.	1	2	2	4	—	1	1	—
Zinc or zinc salts	M.	2	3	4	—	2	3	1	2
	F.	—	—	—	1	2	2	2	1

* *See also* under Irrespirable and Poisonous Gases.
† *See* note at head of Table.

Table LXVIII—*continued.*

Poison.	Sex.	Suicide. Also Homicide (in brackets).				Accident (including "Open Verdicts").			
		1921–1923.	1924–1926.	1927–1929.	1930–1932.	1921–1923.	1924–1926.	1927–1929.	1930–1932.
Analgesic and narcotic drugs :—									
Methane series :—									
Alcohol (acute poisoning)†	M.	—	—	—	—	4	2	2	9
	F.	—	—	—	—	—	1	1	4
Barbituric acid group ..	M.	5	7	11	17	9	10	12	21
	F.	6	6	22	23	2	17	21	30
Chloral group	M.	1	2	—	7	6	4	2	5
	F.	—	—	—	1	1	—	2	1
Chloroform*	M.	4	3	5	2	2	1	—	—
	F.	—	2	1	3	1	—	—	—
Paraldehyde	M.	—	1	—	2	4	4	6	3
	F.	—	—	—	—	2	2	3	6
Sulphone group	M.	—	—	1	1	—	2	1	1
	F.	—	—	—	—	—	—	1	1
Ureides	M.	—	—	—	1	—	—	1	—
	F.	—	—	—	1	—	—	—	1
Opium series :—									
Opium, morphine, codeine and their preparations.	M.	26	12	16	14	31	27	15	16
	F.	7	8 (1)	8	5	13	9	12	10
Diamorphine (heroin) and its preparations.	M.	—	1	—	—	2	—	—	—
	F.	—	—	—	1	1	1	1	—
Belladonna series :—									
Belladonna, atropine and their preparations.	M.	4	4	4	4	10	5	5	4
	F.	4	4	7	3	3	3	5	4
Hyoscine and its preparations.	M.	—	—	—	—	1	1	1	—
	F.	—	—	—	—	—	1	—	—
Cocaine and its preparations and substitutes.	M.	1	—	1	2	1	—	—	3
	F.	4	—	—	1	1	1	—	1
Coal tar analgesics, acetanilide phenazone pyramidon, etc.	M.	—	—	—	1	—	—	—	—
	F.	—	—	—	—	—	1	—	1
Salicyl compounds :—									
Salicylic acid and its preparations.	M.	1	—	3	1	—	1	2	2
	F.	—	1	6	4	1	1	2	4
Acetyl-salicylic acid (aspirin) and its preparations.	M.	—	—	10	18	—	—	10	8
	F.	—	—	5 (1)	17	1	2	8	13
Miscellaneous, including mixtures of the above.	M.	7	5	7	9	3	6	9	8
	F.	2	4	5	9	3	4	8	3
Total analgesic and narcotic group.	M.	49	35	58	79	73	63	66	80
	F.	23	25 (1)	54 (1)	68	29	43	64	79
Miscellaneous or ill defined solid or liquid poisons :—									
Camphor preparations ..	M.	1	4	3	3	3	2	2	3
	F.	1	—	4	6	3	1	1	3
Coal tar derivatives (not otherwise described).	M.	1	2	—	—	—	—	—	—
	F.	—	—	—	3	—	—	—	1
Corrosives (not otherwise described).	M.	21	14	19	10	7	4	—	3
	F.	25	13 (1)	3	1 (1)	2	—	—	2
Cresol disinfectants other than lysol.	M.	9	14	20	23	7	7	3	4
	F.	15	13	26	24	3	5	4	5
Disinfectants and fumigants (not otherwise described).	M.	1	2	4	9	1	—	1	2
	F.	1	2	3 (1)	6	1	—	1	1
Embrocations and liniments (not elsewhere included).	M.	2	6	11	3	5	4	10	2
	F.	1	2	6	4	2	4	2	3
Eucalyptus	M.	—	—	—	1	—	—	—	—
	F.	—	1	1	—	2	—	—	—
Lysol	M.	60 (1)	222 (1)	457 (1)	453 (1)	8	9	16	20
	F.	114	302 (1)	495 (1)	519 (1)	9	14	14	20
Plants, berries leaves, etc. :—									
Deadly nightshade.. ..	M.	—	—	—	—	1	1	—	—
	F.	—	—	—	—	—	2	—	—

* *See also* under Irrespirable and poisonous gases.
† *See* note at head of Table.

Table LXVIII—*continued.*

Poison.	Sex.	Suicide. Also Homicide (in brackets).				Accident (including "Open Verdicts").			
		1921–1923.	1924–1926.	1927–1929.	1930–1932.	1921–1923.	1924–1926.	1927–1929.	1930–1932.
Plants, berries leaves, etc.—*cont.*									
Foxglove	M.	—	—	—	—	1	—	1	—
	F.	—	—	—	—	1	—	—	—
Hemlock	M.	—	—	—	1	—	—	—	—
	F.	—	—	—	—	1	—	1	1
Fungi	M.	—	—	—	—	—	5	1	2
	F.	—	—	—	—	—	1	1	3
Poisonous berries (not otherwise described).	M.	—	—	—	—	4	2	1	2
	F.	—	—	—	—	—	1	—	1
Woody nightshade	M.	—	—	—	—	1	1	—	—
	F.	—	—	—	—	—	1	—	—
Yew leaves	M.	—	—	—	—	—	—	—	1
	F.	—	—	—	1	—	—	1	1
Other poisonous plants	M.	—	—	—	—	1	2	4	—
	F.	—	—	—	—	—	1	1	2
Soldering fluid	M.	—	1	4	—	—	—	2	1
	F.	—	—	—	—	—	—	—	—
Turpentine	M.	—	1	2	1	1	1	—	—
	F.	—	—	—	1	—	2	—	—
Vermin destroyers and insecticides (not otherwise described).	M.	5	5	2	1	—	—	—	—
	F.	4	5	3	2	—	—	—	—
Weed killers (not otherwise described).	M.	1	6	6	7	—	1	—	2
	F.	—	3	1	9	—	—	—	—
All other solid or liquid poisons*	M.	37	22	18	20	24	22	18	17
	F.	21	16	16	8	20	16	12	16
Total solid or liquid poisons and corrosive substances.	M.	680 (3)	791 (4)	1,133 (2)	1,202 (2)	229	217	201	229
	F.	545 (6)	692 (5)	937 (5)	966 (8)	139	161	164	195
Irrespirable or Poisonous Gases.									
Coal gas	M.	999 (8)	1,416 (13)	2,139 (13)	2,920 (29)	168	197	229	235
	F.	542 (8)	859 (13)	1,221 (9)	1,662 (26)	160	186	245	205
Carbon monoxide (so stated) :—									
From coal or coke fire	M.	—	—	—	—				9
	F.	—	—	—	—				4
From gas fire, radiator or geyser	M.	—	—	—	—				8
	F.	—	—	—	—	53	46	61	9
From motor car or petrol engine	M.	—	—	—	—	3	5	21	24
	F.	—	—	—	—				2
From other or unspecified source	M.	7 (1)	4 (2)	1	7				72
	F.	—(1)	1	—	—(1)				3
Carbon dioxide (so stated)	M.	—	—	—	—	11	5	8	8
	F.	—	—	—	—	—	—	—	—
"Fumes" (so stated) :—									
From coal or coke fire	M.	—	—	—	—	—	4	2	7
	F.	—	—	—	—	1	—	1	—
From gas fire, radiator or geyser	M.	—	—	—	—	5	—	—	1
	F.	—	—	—	—	3	—	2	—
From motor car or petrol engine	M.	—	1	7	13	3	4	4	9
	F.	—	—	—	2	—	—	1	—
From oil stove or lamp	M.	—	—	—	—	—	3	—	—
	F.	—	—	—	—	1	2	3	—
Prussic acid (gas)	M.	—	—	—	—	—	2	—	2
	F.	—	—	—	—	—	—	—	—
Analgesic and narcotic drugs :—									
Chloroform vapour	M.	3	—	—	—	—	2	—	—
	F.	1	—	—	—	1	—	—	—
Nitrous oxide gas	M.	2	1	—	—	—	2	2	—
	F.	—	—	—	—	—	—	—	—
Other poisonous gases or fumes	M.	1 (1)	4	2	4	60	47	35	42
	F.	1	4	1	1	9	4	10	4
Total, Irrespirable or poisonous gases.	M.	1,012 (10)	1,426 (15)	2,149 (13)	2,944 (29)	300	312	341	417
	F.	544 (9)	864 (13)	1,222 (9)	1,665 (27)	178	197	283	227

* These include a variety of poisonous substances, but during the 12 years under consideration not more than five deaths have been ascribed to any one of them.

substitution of these for the less convenient methods, but an addition to them

The poisons which show the most noteworthy increases as suicidal agents are lysol (174 in 1921–23 to 972 in 1930–32) and coal gas (1,541 to 4,582). Increases are also evident for ammonia (47 to 78), arsenic (10 to 21), carbolic acid (150 to 195), cresol disinfectants other than lysol (24 to 47), potassium and other cyanides (114 to 175), prussic acid (62 to 80), nicotine preparations (3 to 15), and the group of analgesic and narcotic drugs (72 to 147). The increase in the last-mentioned group is mainly accounted for by aspirin and salicylic acid preparations (from a single death in the first period to 40 in the last) and barbituric acid derivatives (11 to 40). A total of 97 deaths were attributed during the twelve years to suicide by drugs of the barbituric acid series, taken alone, these being subdivided as follows :—veronal (48), medinal (25). dial (8), luminal or phenobarbital (5), allonal (4), soneryl (2), somnifaine (1), codeonal (1), didial (1), veramon (1), barbitone (1). There was a decline in the deaths from opium derivatives.

Female suicidal deaths are greatly in excess of males for lysol and oxalic acid, whilst there is, on the other hand, a noteworthy male excess for prussic acid and other cyanides, for the corrosive acids and nicotine.

Accidental deaths due to solid or liquid poisons or corrosive substances numbered 368 in 1921–23 and 424 in 1930–32, this increase being mainly due to fatalities from the analgesic and narcotic drugs which increased from 102 to 159. Within this group a decline in deaths from the opium and belladonna poisons was more than offset by increases for aspirin and salicylic compounds from 2 to 27, and for the barbituric acid group of drugs from 11 to 51. There were 122 accidental or " open verdict " deaths during 1921–32 attributed to drugs of the barbituric acid series, taken alone, namely : veronal (57), medinal (33), dial (17), luminal (5), somnifaine (4), dial and medinal (2), allonal (1), soneryl (1), dialacetin (1), luminal and barbitone (1).

Accidental deaths attributed to irrespirable or poisonous gases increased from 478 in 1921–23 to 644 in 1930–32, coal gas accounting for 328 and 440 of these respectively.

186. **Crushing by Motor Vehicles (not on railways).**—Apart from 402 deaths on railways and 43 caused by aircraft, there were 5,671 accidental deaths attributed to mechanically-propelled vehicles in 1932, 4,222 of males and 1,449 of females. The rate of mortality per million persons was 141, compared with 147 in 1931 and 159 in 1930. In Table LXIX, the allocation of deaths to the different types of mechanically-propelled road vehicles is shown. The deaths classified as " Others " in 1932 are made up as follows :—

> Motor cab, 46; motor char-a-banc, 64; motor tractor, 6; other or undefined motor, 9; and collisions involving a motor vehicle, the vehicle causing death not being stated, 1,307.

It is regrettable that the last of these items is so large, since the lack of specification of the vehicle causing death renders the analysis of Table LXIX less complete than it would otherwise have been. The decrease in mortality compared with the previous year was shared by all the specified groups, but was more pronounced for motor-cycles and heavy motor vehicles than for motor-cars.

Table LXIX.—Deaths, and Death Rates per Million Living, caused by various Types of Road Motor Vehicles in each year—1927–32.

	Deaths.						Rate per Million Living.					
	1927.	1928.	1929.	1930.	1931.	1932.	1927.	1928.	1929.	1930.	1931.	1932.
Electric tram ..	84	101	89	73	74	52	32·1	2·6	2·2	1·8	1·9	1·3
Motor car ..	1,292	1,550	1,660	1,643	1,688	1,646	22·9	39·2	41·9	41·3	42·2	40·9
Motor van, lorry, etc.	956	938	1,162	1,273	1,209	1,111	4·3	23·8	29·3	32·0	30·2	27·6
Motor omnibus ..	427	557	584	692	529	447	10·9	14·1	14·7	17·4	13·2	11·1
Motor cycle ..	940	1,043	1,162	1,286	1,083	983	23·9	26·4	29·3	32·3	27·1	24·5
Others	753	1,007	1,095	1,375	1,309	1,432	19·2	25·5	27·6	34·5	32·7	35·6
Total motor vehicles	4,452	5,196	5,752	6,342	5,892	5,671	113·3	131·6	145·2	159·3	147·3	141·1

199, 200. **Ill-defined Diseases.**—These headings in the International List of Causes of Death, to which 1,341 deaths have been allocated, exclude the ill-defined diseases of infancy and old age, 158 and 162 (*b*). In the more comprehensive sense resulting from their inclusion, the deaths from ill-defined causes in 1932 numbered 20,280, or 4·19 per cent. of the total, as compared with 4·09 in 1931 and 9·67 in 1911.

Inquiries sent to medical practitioners and coroners requesting further information as to indefinitely certified deaths amounted to 9,004, and to these 8,201 replies were received, with results to classification, some of the most important of which are set out in Table LXX.

Table LXX.—Replies to Inquiries respecting Indefinitely Certified Causes of Death—1932.

Subject of Inquiry.	Replies received.	Replies amplifying previous information.	Deaths allocated as the result of inquiry to certain headings.
Croup	11	11	Diphtheria 2, Laryngismus stridulus 2.
Membranous laryngitis	3	3	Diphtheria 1, Laryngitis 2.
Pyæmia, septicæmia, etc.	197	152	Diseases of the teeth and gums 10, Diseases of the tonsils 22, Puerperal sepsis 6, Diseases of the skin 29.

Table LXX—*continued.*

Subject of Inquiry.	Replies received.	Replies amplifying previous information.	Deaths allocated as the result of inquiry to certain headings.
Tuberculosis.. ..	123	120	Tuberculosis of the respiratory system 57, Tuberculosis of central nervous system 2, Tuberculosis of intestines and peritoneum 5, Tuberculosis of vertebral column 5, Tuberculosis of other bones and joints 12, Tuberculosis of lymphatic system 4, Disseminated tuberculosis 23, Other forms of tuberculosis 2.
Cancer (part or organ not stated).	1,324	1,264	Part or organ stated in 1,243 cases.
Cerebral tumour (P.M. cases).	256	244	Tuberculosis of central nervous system 2, Cancer 99, Glioma 78.
Tumour of other sites	835	640	Syphilis 8, Cancer 450.
Rheumatism.. ..	468	468	Rheumatic fever 141, Chronic rheumatism 2, Rheumatoid arthritis 8, Rheumatic heart disease 302.
Encephalitis.. ..	205	185	Influenza 36, Poliomyelitis 2, Polioencephalitis 4, Encephalitis lethargica 78, Tuberculosis of central nervous system 3, syphilis 4, Other forms of encephalitis 25.
Basal or basic meningitis.	24	20	Cerebro-spinal fever 9, Tuberculosis of central nervous system 4, Meningitis—other forms 5.
Posterior or post basal or post basic meningitis.	54	52	Cerebro-spinal fever 33, Tuberculosis of central nervous system 5, Meningitis—other forms 6.
Cerebro-spinal meningitis.	157	155	Influenza 2, Polioencephalitis 1, Encephalitis lethargica 1, Cerebro-spinal fever 136, Tuberculosis of central nervous system 2, Meningitis—other forms 10.
Spinal sclerosis ..	15	15	Other diseases of the spinal cord 6, Disseminated sclerosis 8.
Cerebral sclerosis ..	6	6	Disseminated sclerosis 2.
Paraplegia	35	29	Syphilis 3, Other diseases of the spinal cord 5, Disseminated sclerosis 2.
General paralysis (outside asylums).	31	30	General paralysis of the insane 22.
Paralysis	17	15	General paralysis of the insane 1, Other diseases of the spinal cord 3.
Aortitis, arteritis and endarteritis.	124	110	Syphilis 48, General paralysis of the insane 1, Aneurysm 1, Arterio-sclerosis 7

Table LXX—*continued.*

Subject of Inquiry.	Replies received.	Replies amplifying previous information.	Deaths allocated as the result of inquiry to certain headings.
Fibroid phthisis ..	80	75	Tuberculosis of respiratory system 58, Chronic interstitial pneumonia 9.
Hæmoptysis	21	18	Tuberculosis of respiratory system 6, Aneurysm 2.
Stomatitis	15	14	Thrush, aphthous stomatitis 4.
Stricture of œsophagus	31	29	Tuberculosis of respiratory system 1, Cancer 15.
Hæmatemesis ..	20	15	Cancer 4, Ulcer of stomach or duodenum 7.
Pyloric stenosis, obstruction, etc.	56	52	Cancer 10, Ulcer of stomach or duodenum 24.
Jaundice	37	26	Cancer 4, Cirrhosis of liver 3, Biliary calculi 8.
Peritonitis	83	69	Influenza 1, Cancer 1, Ulcer of stomach or duodenum 11, Appendicitis 15, Hernia 2, Intestinal obstruction 4, Puerperal sepsis 3.
Pemphigus of infants	73	64	Syphilis 11.
Hydrocephalus ..	56	50	Cerebro-spinal fever 1, Tuberculosis of central nervous system 1, Syphilis 1, Congenital hydrocephalus 26.
Violence	502	417	Precise form of suicide 133, Drowning 9, Injury by fall 68, Injury in mines and quarries 27, Injury by crushing 97.
Syncope, heart failure	149	121	Influenza 5, Syphilis 2, Rheumatic fever 1, Diseases of the heart 82, Bronchitis 4, Nephritis 4.
Operation	603	584	Cancer 45, Tumours of female genital organs 52, Ulcer of stomach or duodenum 37, Appendicitis 14, Hernia, Intestinal obstruction 55, Biliary calculi 72, Other diseases of the gall bladder 36, Diseases of the prostate 35, Diseases of the female genital organs 32, Congenital malformations 4, Violence 5
Other indefinite forms of certification.	2,590	2,367	———
Total	8,201	7,420	———

The total additions to certain definite headings resulting from these inquiries were as follows :—To influenza, 92; to encephalitis

lethargica, 82; to cerebro-spinal fever, 188; to tuberculosis of the respiratory system, 188; to other forms of tuberculosis, 143; to venereal diseases, 151; to cancer, 699; to diseases of the spinal cord, 31; to general paralysis of the insane, 29; to disseminated sclerosis, 17; to arterio-sclerosis, 36; to ulcer of stomach and duodenum, 125; to appendicitis, 72; to biliary calculi, 103; to chronic nephritis, 93; to diseases of the prostate, 57; to puerperal sepsis, 50; to congenital malformations, 75.

In addition to the foregoing, 1,961 inquiries were addressed to medical practitioners who had initialled statement " B " on the back of the new form of medical certificate, thereby indicating the possibility of their being in a position to furnish additional information respecting the certified cause of death as the result of a P.M. or laboratory examination which was not available at the time of signing the certificate. Of the 1,596 replies received to these inquiries, 774 amended the original certification.

Anæsthetics.—The usual annual statement of deaths during or connected with the administration of an anæsthetic is continued. This is obtained by secondary tabulation of these deaths, since the primary tabulation, represented by Table 21, classified all such deaths to the disease or injury on account of which the anæsthetic was administered.

The total number of deaths in Table LXXI, 749, is 26 more than in 1931, and is the largest number yet recorded. During the years

Table LXXI.—Deaths under or connected with the Administration of various Anæsthetics, according to Sex and Age—1932.

Anæsthetic.		Age.														
		All Ages.	0–	1–	5–	10–	15–	20–	25–	30–	35–	40–	45–	50–	55–	65–
Chloroform	M.	52	2	4	6	3	2	2	2	1	1	7	4	4	8	6
	F.	36	1	1	3	2	–	3	6	8	4	1	2	–	2	3
Chloroform and ether	M.	103	2	11	3	4	7	8	3	6	10	6	10	9	14	10
	F.	68	1	3	1	–	–	2	7	6	11	10	7	4	9	7
Chloroform, ether and ethyl chloride	M.	5	1	1	–	–	–	–	–	1	–	1	–	–	–	1
	F.	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–
Chloroform, ether and novocaine	F.	2	–	–	–	–	–	–	1	–	1	–	–	–	–	–
Chloroform and avertin	M.	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–
	F.	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–
Ether	M.	130	8	22	13	9	4	6	1	11	4	2	7	7	23	13
	F.	118	1	11	14	7	4	11	8	11	8	14	3	9	8	9
Ether and ethyl chloride	M.	24	2	7	6	–	4	–	–	–	1	1	–	2	1	–
	F.	19	–	3	7	1	1	3	1	–	–	2	–	1	–	–
Ether and percaine	M.	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Ether and nembutal	M.	1	–	–	–	–	–	–	–	–	–	–	1	–	–	–
	F.	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Ether and stovaine	F.	2	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Ether and avertin	F.	2	–	–	–	–	–	–	1	–	–	–	–	–	–	1

Table LXXI—*continued.*

Anæsthetic.		Age.													
		All Ages.	0–	1–	5–	10–	15–	20–	25–	30–	35–	40–	45–	50–	55–	65–
Ether and novocaine	F.	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–
Ether, morphia and atropine	F.	1	–	–	–	–	–	–	1	–	–	–	–	–	–	–
A.C.E. mixture	M.	3	1	–	–	–	–	–	1	–	–	–	–	–	1	–
	F.	5	–	–	1	–	–	–	1	1	–	–	–	–	1	1
Nitrous oxide	M.	36	–	1	1	1	–	–	–	–	4	3	3	3	10	10
	F.	27	–	1	2	–	2	1	2	4	2	2	2	1	3	5
Ethyl chloride	M.	7	–	3	2	–	–	–	–	1	–	–	–	1	–	–
	F.	7	–	1	1	1	1	2	–	–	–	–	1	–	–	–
Avertin	M.	5	–	–	–	–	1	–	–	–	1	–	–	1	1	1
	F.	4	–	–	–	–	–	–	–	1	–	1	–	–	2	–
Avertin and spinocaine	F.	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Avertin, novocaine and adrenalin	F.	1	–	–	–	–	–	–	–	–	–	–	–	1	–	–
Cocaine	M.	3	–	–	–	–	–	1	–	–	–	–	–	–	2	–
	F.	2	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Duracaine	F.	2	–	–	–	–	–	–	–	–	–	–	1	–	–	1
Novocaine	M.	16	–	–	–	1	–	–	–	–	1	–	–	3	4	7
	F.	9	–	–	–	–	–	–	–	–	–	–	–	3	1	5
Novocaine and adrenalin	M.	3	–	–	–	–	–	–	–	–	–	–	–	–	1	2
Novocaine and novutox	M.	1	–	–	–	–	–	–	1	–	–	–	–	–	–	–
Percaine	M.	10	–	–	–	–	–	–	–	–	1	–	–	3	1	5
	F.	13	–	–	–	–	1	2	–	–	–	1	2	3	3	1
Stovaine	M.	6	1	–	–	–	–	1	–	–	–	–	–	–	1	3
	F.	6	–	–	–	–	–	–	–	1	–	–	–	–	2	3
Stovaine and nembutal	F.	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–
Planocaine	M.	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–
	F.	1	–	–	–	–	–	–	–	–	–	–	–	1	–	–
Spinocaine	M.	3	–	–	–	–	–	1	–	–	–	–	–	–	–	2
Pantocaine	M.	1	–	–	–	–	–	–	–	–	–	–		–	–	1
Morphia and atropine	M.	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–
Omnopon and hyoscine	F.	1	–	–	–	–	–	–	–	–	–	–	–	1	–	–
Kind not stated	M.	3	–	–	–	–	–	–	1	–	–	–	–	–	–	2
	F.	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–
Total	M.	416	17	49	31	18	18	19	9	20	23	22	25	33	68	64
	F.	333	3	21	29	11	9	24	28	32	26	32	18	24	36	40

for which fully comparable figures can be stated these deaths first increased slowly from 276 in 1911 to 366 in 1920, declined to 336 in 1922, rose to 446 and remained about that level to 1925, and then increased rapidly to 730 in 1929, with little subsequent change.

For the years before 1911 the record is contained in the tables of accidental deaths, but certain causes—strangulated hernia and cancer—were at this time preferred in tabulation to the anæsthetic used. In 1932 the 749 deaths included 113 associated with cancer, and 56 with hernia. So for comparison with the years prior to 1911 the number of deaths should be reduced to 580. But during 1901–10 the deaths ranged from 133 (1901) to 234 (1910).

Subject to allowance, on the scale indicated by this reduction, for the more comprehensive nature of the figures from 1911 onwards, the records of the present century may be compared as in Table LXXII.

Table LXXII.—Deaths under or associated with Anæsthesia, 1901–32.

Year.	Males.									Females.								
	All ages	0–	5–	15–	25–	35–	45–	55–	65–	All ages	0–	5–	15–	25–	35–	45–	55–	65–
Yearly average:																		
1901–05* ..	95	14	20	9	13	16	11	7	4	53	6	9	7	11	8	8	3	2
1906–10* ..	125	26	20	12	16	18	16	9	8	77	7	14	9	18	11	10	4	3
1911–15 ..	167	30	23	14	20	28	24	16	10	116	14	17	15	16	22	18	10	5
1916–20 ..	188	36	25	25	27	22	20	19	13	119	11	16	14	21	22	17	7	9
1921–25 ..	229	40	28	20	18	27	36	37	24	169	20	17	17	30	29	25	17	12
1926–30 ..	361	56	47	30	26	37	50	62	53	288	29	29	29	44	51	49	34	23
1921	204	30	29	16	16	19	34	30	30	133	16	23	16	24	21	19	11	3
1922	185	29	21	16	9	27	30	35	18	151	16	15	12	29	31	26	12	10
1923	262	45	37	29	17	38	35	34	27	184	22	23	14	23	32	32	23	15
1924	245	51	30	21	25	21	42	39	16	184	26	11	30	29	31	21	18	18
1925	249	43	25	17	23	28	39	45	29	193	22	14	15	43	32	29	23	15
1926	306	57	43	23	29	34	39	43	38	250	32	22	29	35	44	51	23	14
1927	328	43	51	25	20	30	42	70	47	268	24	28	29	46	47	40	35	19
1928	384	63	41	30	23	43	55	67	62	272	29	21	27	44	45	44	33	29
1929	414	66	61	31	25	43	63	64	61	316	35	35	27	52	52	50	43	22
1930	375	51	41	39	34	34	52	68	56	332	27	39	33	45	66	58	35	29
1931	413	60	51	44	36	41	51	73	57	310	27	40	23	60	55	43	38	24
1932	416	66	49	37	29	45	58	68	64	333	24	40	33	60	58	42	36	40

* Excluding deaths from cancer and strangulated hernia—*see* page 110.

Deaths in later periods compared with those of 1911–15 taken as 100.

Yearly average:																		
1911–15 ..	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1916–20 ..	113	120	109	179	135	79	83	119	130	103	79	94	93	131	100	94	70	180
1921–25 ..	137	133	122	143	90	96	150	231	240	146	143	100	113	188	132	139	170	240
1926–30 ..	216	187	204	214	130	132	208	388	530	248	207	171	193	275	232	272	340	460
1931	247	200	222	314	180	146	213	456	570	267	193	235	153	375	250	239	380	480
1932	249	220	213	264	145	161	242	425	640	287	171	235	220	375	264	233	360	800

The increase since 1911–15 is very general in its application to sex and age, but is relatively greater at ages over 55, and least for males aged 25–45.

As in most years since 1921, deaths of females were in excess of males at ages 25–45 but males were in excess at other ages.

The anæsthetic agents recorded on death certificates have altered considerably in recent years, as may be seen from Table LXXIII. Since 1921 deaths associated with chloroform alone have shown little change; for ether alone they have increased nearly four-fold; and for chloroform and ether mixture alone they have increased more than two-fold. Deaths associated with the use of ethyl chloride alone have shown little change since 1925, but fatalities with ethyl chloride in combination with ether have mounted rapidly in recent years. Fatalities in which nitrous oxide was

Table LXXIII.—Deaths under or associated with the Administration of Various Anæsthetics in each year, 1921 to 1932.

	Sex.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.
Anæsthetics of the Methane series :—													
Chloroform (alone) ..	M.	40	36	54	56	43	54	48	75	63	51	58	52
	F.	42	27	33	32	40	47	53	36	41	37	37	36
Ether (alone)	M.	32	39	73	60	61	105	101	118	142	126	134	130
	F.	35	31	50	52	52	67	72	108	121	130	114	118
Chloroform and Ether	M.	53	48	73	90	91	89	100	120	116	115	126	103
	F.	20	34	53	61	57	78	69	80	93	87	79	68
A.C.E. mixture ..	M.	11	3	10	9	11	9	9	5	3	1	10	3
	F.	1	6	6	2	3	8	2	—	6	3	—	5
Ether and Ethyl chloride	M.	1	—	1	1	7	10	15	9	12	16	28	24
	F.	—	1	—	1	3	7	17	7	13	16	10	19
Other mixtures, including chloroform or ether.*	M.	3	1	5	3	5	4	4	6	8	5	2	8
	F.	1	1	5	5	2	7	7	3	4	5	8	11
Ethanesal	M.	1	1	1	—	1	—	—	—	—	—	—	—
	F.	1	5	—	—	—	—	—	—	—	—	—	—
Ethyl chloride (alone)	M.	4	1	3	1	5	4	8	6	7	6	3	7
	F.	2	1	3	1	6	3	6	3	3	4	11	7
Barbituric Acid group—Nembutal.	M.	—	—	—	—	—	—	—	—	—	—	—	—
	F.	—	—	—	—	—	—	—	—	—	—	3	—
Avertin (alone) ..	M.	—	—	—	—	—	—	—	—	1	1	2	5
	F.	—	—	—	—	—	—	—	—	1	1	3	4
Avertin with cocaine derivative.	M.	—	—	—	—	—	—	—	—	—	—	—	—
	F.	—	—	—	—	—	—	—	—	—	—	1	2
Nitrous oxide	M.	6	6	8	9	5	9	13	18	27	23	21	36
	F.	4	1	6	4	4	6	19	12	11	18	22	27
Opium or Morphine and their preparations with atropine, hyoscine or cocaine derivative.	M.	—	—	—	—	1	—	1	—	—	1	—	1
	F.	—	—	1	—	—	—	—	—	—	1	1	1
Cocaine and its preparations and substitutes (without any of above):—													
Stovaine	M.	2	5	6	2	2	3	4	2	3	4	2	6
	F.	3	6	—	1	5	6	5	3	6	3	2	6
Novocaine	M.	—	3	—	2	2	2	5	9	12	10	6	20
	F.	—	3	1	1	2	1	3	6	3	11	4	9
Others	M.	1	—	—	—	—	2	4	2	7	4	14	18
	F.	1	1	—	2	1	3	1	4	5	4	10	18
Miscellaneous or unspecified, including combinations of, or containing, the above, not distinguished.	M.	50	42	28	12	15	15	16	14	13	12	7	3
	F.	23	34	26	22	18	17	14	10	9	12	5	2
Total	M.	204	185	262	245	249	306	328	384	414	375	413	416
	F.	133	151	184	184	193	250	268	272	316	332	310	333

* Including combinations of chloroform or ether with morphia, atropine, nembutal or cocaine derivatives or substitutes.

concerned numbered 63 in 1932 compared with a yearly average of 11 in 1921–25. There was in 1932 a large increase in deaths associated with cocaine preparations and substitutes, the numbers in each year from 1925 to 1932, excluding combinations of these drugs with chloroform, ether or morphia, being 12, 17, 22, 26, 36, 36, 38, 77. Deaths under avertin anæsthesia (alone) increased to 9.

The excess of 344 in the total (excluding the miscellaneous and unspecified group) in 1932, compared with 1921, was made up in the main by increases of 279 for ether or ether and chloroform, 53 for nitrous oxide, 50 for ethyl chloride alone or in conjunction with ether, and 70 for the cocaine group.

It need scarcely be pointed out that these fatalities depend upon the extent to which the various agents are used as well as upon the risk attaching to them. But unfortunately the deaths associated with each type of anæsthetic cannot be collated with the number of its administrations. It is not even possible to say whether, or to what extent, the rapid increase in the number of these deaths implies increased mortality under anæsthetics. The number of administrations is known to be increasing very rapidly, but cannot be estimated. The deaths tabulated, moreover, can only be those under, not those caused by, anæsthesia. It is impossible from certification to distinguish between deaths from operation under anæsthesia and deaths due to the anæsthetic itself.

Of the 749 deaths in 1932 shown in Table LXXII, 600 (80 per cent.) were classed to the 22 headings enumerated in Table LXXIV, the remainder being of very varied causation. The composition of this list changes little from year to year.

Table LXXIV.—Classification of Deaths under or associated with Anæsthesia, 1932.

	Cause to which Death was assigned.	Males.	Females.		Cause to which Death was assigned.	Males.	Females.
24–32	Non-respiratory tuberculosis.	6	8	122 *b*	Intestinal obstruction.	26	12
45–53	Cancer	65	48	126	Biliary calculi ..	6	6
66 *b*	Exophthalmic goitre	—	18	127 (pt.)	Diseases of the gall bladder.	3	2
89 *b*	Diseases of the mastoid sinus.	10	7	136 *a*	Stricture of the urethra.	2	—
104	Diseases of the nasal fossæ and annexa.	6	2	137	Diseases of the prostate.	10	—
110 : 1	Empyema.. ..	16	5	138 (pt.)	Circumcision ..	7	—
115 : 1 (pt.)	Extraction of teeth.	13	9	54 *a* (pt.)	Uterine fibroids ..	—	11
115 : 3	Diseases of the tonsils.	30	20	140–150	Childbirth and abortion.	—	48
117	Ulcer of the stomach or duodenum.	25	7	154	Acute infective osteomyelitis.	4	—
121	Appendicitis ..	33	23	157	Congenital malformations.	15	3
122 *a*	Hernia	35	21	163–198	Violence	26	12

The cancer deaths have increased twofold since 1926, and the exophthalmic goitre deaths increase year by year.

The numbers of deaths reported from different classes of institutions, etc., in various regions of the country are stated in Table LXXV, in which, as place of occurrence is evidently of more interest for these deaths than place of residence, they have been tabulated by area of registration.

During 1925–32 the proportion of hospital deaths has varied only from 72 to 80 per cent. of the total; for poor-law institutions the percentage has been 8–16 in different years; for mental hospitals never over 1; for nursing homes, 4–7; and for non-institutional deaths, 5–10.

Table LXXV.—Deaths under Anæsthetics Registered in 1932. Distribution by Part of Country and Place of Occurrence.

		Greater London.	South-East excluding Greater London.	North.	Midland.	East.	South-West.	Wales.	England and Wales.
Hospitals	M.	83	40	120	40	13	10	14	320
	F.	67	31	87	30	7	7	10	239
Poor Law Institutions	M.	32	2	23	8	—	—	1	66
	F.	22	2	17	10	—	—	3	54
Mental Hospitals ..	M.	1	—	—	—	—	1	—	2
	F.	1	—	—	—	—	—	—	1
Nursing Homes ..	M.	4	3	3	1	—	—	1	12
	F.	7	2	5	3	—	—	—	17
Elsewhere	M.	2	5	6	2	1	—	—	16
	F.	6	2	6	4	—	2	2	22
Total	M.	122	50	152	51	14	11	16	416
	F.	103	37	115	47	7	9	15	333

Since most of these deaths occur in institutions to which patients are drawn from wide areas, it is not surprising to find that the ratio of anæsthetic deaths to resident population is highest in Greater London, 27 to each million (36 in London itself, and 17 in the Outer Ring), and lowest in Wales II and the South-West region, where the ratios are respectively 4 and 10 to each million. In other regions the ratio ranges from 11 to 25.

Status Lymphaticus and Anæsthetics.—The deaths from status lymphaticus primarily classified to diseases of the thymus in Table 21, which have shown a tendency to increase in recent years and reached a maximum of 202 in 1929, fell somewhat precipitately to 138 in 1930, numbered 143 in 1931, and 154 in 1932. In addition to these 154 deaths, there were 57 deaths under anæsthetics in the case of which record was made of the presence of this condition but which have been referred in tabulation to the condition occasioning the administration of the anæsthetic.

The sex and age distribution of these was as follows :—

	All Ages.	0–	5–	10–	15–	20–	25–	35–
Males	40	17	7	5	2	4	2	3
Females	17	4	3	2	1	1	4	2

MEDICAL CERTIFICATION.

Reference may be made to the section under this head in the corresponding volume of the Statistical Review for 1928, as indicating the circumstances in which it has been arranged to include statistics on this subject as a regular annual feature of the Review. As stated therein, the figures for 1928 were given with a special degree of elaboration intended to serve as a datum line for similarly exhaustive comparisons on periodical occasions in the future; and for the present and other intermediate years less detail is given. It will be borne in mind that the Regulations require a death to be reported to the Coroner if the medical attendant certifying the cause of death had seen the deceased neither after death nor within 14 days before death.

In Table LXXVI figures are given bearing upon the extent to which death registration and burial take place on the strength of the certificate of a medical attendant who has seen the body of the deceased after death. In any statistical analysis it is necessary for all practical purposes to group with such cases those where the death was the subject of a Coroner's inquest or post mortem examination, or came under review by a Coroner prior to registration and burial. These cases are therefore included under the head of " seen."

Table LXXVI.—Summary of Certification of Deaths Registered during the Year 1932.

	Registered Medical Practitioner.	Inquest or Coroner's P.M. without Inquest.	Other cases reviewed by Coroner.*	Total deaths registered.	
				Number.	Percentage.
Seen after death ..	211,541	38,931	4,655	255,127	52·7
Not seen after death..	228,394	—	—	228,394	47·2
No statement ..	608	—	—	608	0·1
	440,543	38,931	4,655	484,129	100·0

* Cases without certificate of registered medical practitioner in attendance (which since 1914 must be referred by Registrar to Coroner) where Coroner declined to hold inquest.

The above statement shows that in 1932 the proportion of " seen " cases was 52·7 per cent. of the total deaths registered; in 1928, 1929, 1930 and 1931 the corresponding percentages were 51·0, 49·7, 52·0 and 51·8.

The number of certificates without indication of whether the body was seen or not seen after death has steadily declined

from 2,108 in 1928 to 608 in 1932; it tends to confirm the supposition that this is a temporary feature mainly due to the inception of the new procedure. A large proportion of the current certificates in this category are in respect of deaths in hospitals and similar institutions.

Table LXXVII.—Comparison of Proportions of "seen" and "not seen" in Institutions and in Private Practice (Coroners' Cases Excluded). 1928-32.

		Public Assistance Institutions.		Voluntary Hospitals.		Private Practice.	
		Seen.	Not Seen.	Seen.	Not Seen.	Seen.	Not Seen.
		%	%	%	%	%	%
March Quarter	1928	35·3	64·7	70·2	29·8	42·8	57·2
	1929	32·0	68·0	69·8	30·2	41·6	58·4
	1930	34·4	65·6	69·6	30·4	43·3	56·7
	1931	33·4	66·6	69·5	30·5	44·1	55·9
	1932	33·5	66·5	70·1	29·9	45·7	54·3
June Quarter	1928	36·7	63·3	69·7	30·3	41·6	58·4
	1929	35·8	64·2	70·0	30·0	41·0	59·0
	1930	34·6	65·4	69·4	30·6	43·2	56·8
	1931	34·6	65·4	70·3	29·7	43·4	56·6
	1932	35·0	65·0	69·6	30·4	44·4	55·6
September Quarter ..	1928	37·1	62·9	69·9	30·1	42·3	57·7
	1929	36·2	63·8	69·4	30·6	42·1	57·9
	1930	34·5	65·5	71·0	29·0	44·1	55·9
	1931	35·6	64·4	71·2	28·8	44·0	56·0
	1932	34·9	65·1	70·5	29·5	45·0	55·0
December Quarter ..	1928	36·7	63·3	69·6	30·4	44·0	56·0
	1929	35·3	64·7	69·9	30·1	43·9	56·1
	1930	35·6	64·4	71·4	28·6	45·5	54·5
	1931	35·7	64·3	70·7	29·3	45·7	54·3
	1932	36·2	63·8	70·7	29·3	46·3	53·7
Year	1928	36·4	63·6	69·8	30·2	42·7	57·3
	1929	34·2	65·8	69·8	30·2	42·0	58·0
	1930	34·8	65·2	70·3	29·7	44·0	56·0
	1931	34·6	65·4	70·4	29·6	44·3	55·7
	1932	34·8	65·2	70·2	29·8	45·4	54·6

Note.—The statutory notice of death respecting all deaths in Mental Institutions provides for a statement of marks of violence found on the body; and in view of this provision all deaths in these Institutions have been classed as "seen" after death.

In the cases returned above as "not seen" the great majority of the deceased persons were, of course, seen alive by the medical attendant on the day of death or on the day before. Figures have not been extracted since 1928 but for that year it was

stated that "if these cases, totalling to 41 per cent. of the total deaths, are added to those seen after death, as conforming to a standard which satisfies reasonable requirements, the proportion of such cases is increased to 92 per cent. Further, if those 'seen alive' within two days are added, the total is increased to 96 per cent."

Of the 47·2 per cent., or 228,394 deaths in all, included above as "not seen" after death, a substantial proportion, viz., 74,115, took place in hospitals and other residential institutions.

As the field for any enlargement of the proportion of cases "seen" after death is limited to the cases of deaths certified by medical practitioners it will be of interest to analyse such cases in more detail.

Variations in the proportions of "seen" and "not seen" cases during the years 1928 to 1932 are shown in Table LXXVII.

POPULATION.

The total population of England and Wales as at the 30th June, 1932, has been estimated at 40,201,000 persons, 19,280,000 being males and 20,921,000 females.

The current year's total, which is now beyond the forty million mark, is 213,000 in excess of the corresponding mid-1931 estimate and represents an estimated rate of growth of 0·53 per cent. per annum during the past year, a figure which may be compared with the ten year increases of 5·52 per cent. and 4·93 per cent. recorded in respect of the decennia 1921–31 and 1911–21 respectively. (*See* Preliminary Census Report, 1931, Table I.)

The method adopted in arriving at the current estimates is that which has been used with apparent success in past periods and consists of taking the 1931 Census as a starting point, adding the births and immigrants and deducting deaths and emigrants between the date of the census and the 30th June, 1932. Of the elements entering into the computation, the records of births and deaths are believed to be precise and complete, so that such estimation error as may be inherent in the final result may be regarded as attaching almost wholly to the allowances included in respect of migration. For the latter, recourse is had to the statistics of migration periodically compiled by the Board of Trade and to departmental records of the movements of the Defence Forces; these are incomplete, however, in that they afford no guide to the passenger traffic between the several countries of the United Kingdom nor to the possible effect on the home population of changes in the personnel of the mercantile marine, the allowance for which is a matter of judgment based upon past experience qualified as may seem to be required by current conditions. The error to which the population estimates are subject is one which may be expected to grow in degree as the preceding census becomes more remote, but for 1932, the year following the Census, it can probably be regarded as insignificant.

It is of interest to observe (from Part II of the Statistical Review Table S) that the net balance of migration which for several decades has, on the whole, been consistently outward in character, appears for the last two years to have shown a definite inward tendency, thus affording some numerical compensation for the continued decline in the numbers of births.

Age Distribution.—The estimated sex-age distribution of the national population is shown in Table 1 of Part I of the Tables section of this volume. Corresponding figures for last year (based upon the 1931 census returns) were published in the Text portion of the 1931 Statistical Review and the new 1932 distribution has been obtained therefrom by the survivorship method now in use for the purpose; this briefly consists of (1) obtaining the year's deaths arising from the population at each age in 1931, and treating the survivors as the population at the next higher age in 1932, (2) completing the table by the addition of the population aged 0–1, represented by the survivors at the middle of 1932 of the births occurring between the middle of 1931 and the middle of 1932, and (3) adjusting the results of these two operations in respect of the balance of population movement in accordance with such age statistics as are available in respect thereof.

The average ages of the mid-1932 population according to the estimated age distribution are 32·0 and 33·7 for males and females respectively, figures which compare with averages of 31·8 and 33·5 in 1931 or 29·9 and 31·2 in 1921.

Local Populations.—The 1932 estimates of the populations of all Boroughs, Urban Districts and Rural Districts in England and Wales are shown in Table 17 of Part I and Table E of Part II of the Tables section of the present volume. They take their place in the series of estimates annually framed by the Department and they possess an additional significance on the present occasion from the fact that they constitute a principal factor in the basis of the distribution of large exchequer monies under the Local Government Act of 1929. Their use for such purpose necessitated the utmost care in their preparation and, though the general methods adopted were not significantly different from those used during the last intercensal period, additional tests and special measures were instituted in order that the errors, inherently inseparable from computed estimates, should fall within the lowest attainable limits.

In the first place, all local authorities were themselves circularized with a view to securing that any statistical data bearing upon the question, which might have become available in the course of local administration should be brought to the notice of the Department. A substantial number of local authorities responded to this invitation and very careful consideration was given to the variety of information thus supplied.

At the same time local registrars of births and deaths were required to report on the populations of large institutions and

similar special premises in order to secure the proper representation of those elements of the community of which the changes from time to time might not readily be reflected by the normal methods of estimation.

The general principles and methods underlying the construction of the estimates are generally similar, as indicated above, to those adopted in past years, but since the results occasionally differ, sometimes materially, from corresponding estimates computed by local authorities or other interested persons, it may be of advantage to reproduce the following extracts from a memorandum setting out the procedure and calling attention to some of the pitfalls attending the estimation which has been issued to local authorities and others who have asked for explanation regarding the figures in which they are interested.

> In accordance with custom, the estimates refer to the whole calendar year and may accordingly be regarded as representing the position at the middle point of the year, viz., 30th June, 1932. Further, they purport to represent " resident " populations and are, in this respect, different in principle from census populations which consist simply of the persons actually enumerated in the several areas on census night, whether resident in the area of enumeration or not.
>
> The estimation procedure may, on these premises, be divided into two parts; first, the ascertainment or estimation of the resident population of each area corresponding to the enumerated population as at the date of the census in 1931, and second, the modification of this basic resident population in accordance with available evidence of changes in population which have occurred between the date of the census and the 30th June, 1932.
>
> The basic resident population of 1931 can usually be identified with sufficient accuracy for practical purposes from the census records themselves. The census schedule provided for a return of each person's address of usual residence and thus supplied the data for Table 6 of the County Census volumes in which are shown, for each area, the numbers enumerated in the area who were resident elsewhere and the complementary numbers of residents who were enumerated outside the area. Examination of the schedules, however, disclosed the fact that, in respect of one small section of the population, these returns were incomplete; residents of boarding schools, colleges, etc., who were on vacation at the date of the census, were instructed to return the school area as their place of usual residence but in a number of instances failed to do so, and corrections have, therefore, been incorporated in the populations of areas with appreciable school populations with the object of removing the deficiency to which the basic population might otherwise have been subject.
>
> The identification of changes in resident populations between the census date and the 30th June, 1932, may be conveniently separated into the two portions representing natural increase (or decrease) and migration.
>
> The element of natural increase (or decrease), that is, the difference between births and deaths, is obtainable almost exactly in any and every area from registration records, and occasions no difficulty whatever.

In respect of migration movements, however, specific records do not exist, and inferences have to be drawn from other and less direct sources of information. Of these, the most fruitful are the successive registers of Parliamentary electors. The numbers on the register by virtue of a residence qualification correspond very closely with the adult resident population; the registers are revised each year as the result of a canvass undertaken by local authorities themselves and the changes in the register should, therefore, represent, with minor exceptions, changes in the population aged 21 and over. But a change thus disclosed for an area is not wholly due to migration : part arises from the admission to the register of persons attaining franchise at age 21 and part from removals from the register on account of death. These elements have accordingly been severally allowed for in respect of each area and the balances remaining have been regarded as providing a reasonable picture of the incidence of internal migration within the country so far as the bulk of the adult population is concerned. In respect of the relatively smaller migration movements amongst the population under age 21, distinction has been drawn between younger and older children. Experience shows that while up to about school leaving age, the incidence of movement is related to that of adults, at the higher juvenile ages migration has a character of its own dependent largely on the distribution of employment opportunities. These movements have been separately assessed in accordance with such information as was available in respect of them.

Finally, changes in the resident population of large institutions or other special premises which would not be reflected by general records have been ascertained by local enquiry and incorporated in the resultant estimates.

Population estimates, computed in the foregoing manner, were prepared for all areas in the country and each was then examined in relation to the local areal development represented by the construction of new dwellings. Housing statistics are not regarded as satisfactory indicators of their population contents for a number of reasons. For example, the records of dwellings demolished or converted to other uses are not so complete as the returns of new buildings; and again, there is great variability in the extent to which the occupants of new dwellings are divided between newcomers to the area and others from within the area itself. A test was made, however, wherever housing records were available and was found to support the prepared estimate in respect of a majority of areas. Where it appeared from the examination that the estimates might reasonably be suspected of being unduly low or high, the circumstances were further examined in relation to census and other data and where conditions warranted it, adjustments were introduced in accordance with an arranged scheme within the latitude allowed by the overriding condition that the estimates of local areas should aggregate to the more reliable and previously approved population estimate for the country as a whole.

Changes in boundary between the date of the census and the 30th June, 1932, have been fully allowed for and the estimate for an area which has been subject to boundary alterations represents the full year's population for the area as constituted on the 30th June, 1932.

Notwithstanding the care devoted to their consideration and preparation, it must be remembered that estimates are essentially different from ascertained facts in that, however formed or by whomsoever prepared, they cannot claim to be free from some margin of error. The 1932 estimates have been framed upon a plan uniformly and impartially applied to each area and designed with a view to

restricting the error within the smallest possible field. Nevertheless they remain estimates only, the exactness of which is incapable either of proof or disproof.

The estimate of every area is related to the estimates of adjacent and more distant areas. Each may be regarded as representing a collective judgment in respect of a number of factors, some of which may suggest an increase and others a decrease in population, but all of which may be open to varied interpretation; criticism based upon partial evidence or selected factors alone can only result in a distorted view of an estimate as a whole.

It will be appreciated that an adequate discussion of the interplay of all the factors contributing to the estimate of each of the 1,800 odd Boroughs and Districts into which the country is divided would present an altogether impossible task, and in these circumstances, the Registrar-General desires to call attention to certain general misconceptions or sources of error into which, from the experience of recent years, critics of the estimates may be liable to fall :—

(*a*) The estimates refer to the position as at the 30th June, 1932, and not as at the 31st December, 1932.

(*b*) The estimates purport to represent resident populations which are different in principle from Census populations as already indicated.

In this connection, it may be stated that the estimates of resident populations published in the 1931 Statistical Review were prepared before the Census returns had been examined and have accordingly been entirely disregarded in the construction of the 1932 estimates.

(*c*) In comparing population changes with changes in the numbers of electors, it must be borne in mind that the latter consist of adults only and that, in the general population at the present time, while the number of adults is increasing, the numbers below age 21 are declining.

Speaking generally, a high rate of electoral increase in a given area usually denotes a much lower rate of population increase; a slowly increasing electorate may indicate a stationary or declining population, while a stationary or declining electorate almost certainly indicates a fall or much larger fall in total population.

(*d*) Similarly in connection with housing comparisons, populations cannot be regarded as changing in simple relationship with the changes in the numbers of dwellings available. This may be illustrated by reference to conditions in the country as a whole. Between the date of the Census and the 30th June, 1932, some 250,000 new dwelling houses have been completed. These, on a conventional rate of occupation of, say, four persons per dwelling, may be regarded as housing about one million people; but the total increase in the national population during this period can be shown to be little different from 250,000 persons. It would follow that the occupants of the houses existing at the date of the Census must have been diminished by a substantial amount of the order of 750,000 persons, or about two per cent. of the total population. The remarkable decline in the size of families is a feature which has been noted in the Census records of almost every area in the country; and no estimate of population movement could be regarded as valid which, while taking account of the occupants of new dwellings, ignored the equally important, if less tangible, decline that is taking place in the population of the older houses.

Non-Civilian Populations.—The merging of non-civilian and civilian deaths in the local mortality records from 1932 onwards

has rendered unnecessary the identification of civilian apart from total populations, and the former, shown hitherto in footnotes to Tables 17 and E, are accordingly now omitted.

Institutions.—In the Census classification of population according to residence, the populations of institutions, *e.g.*, Public Assistance Institutions, Infirmaries, Hospitals, Mental Institutions, etc., have been dispersed to their home areas where it was anticipated that they would be discharged within a period of six months; otherwise they were retained in the Institution area. This convention is reflected in the population estimates but is not precisely identical with the procedure in the areal classification of deaths where it is customary to transfer all institution deaths to former area of residence (if known) irrespectively of the time spent in the Institution.

Local Age Distributions.—Sex and age distributions for the large aggregates of areas, which have hitherto appeared in the Text portion of the Review, are for 1932 shown in Table 2 of Part I. The populations at ages under five were obtained by the survivorship method (*see* page 118), and for later ages the total populations, obtained as described in the preceding section, were distributed in accordance with the recent census age and sex distribution of the unit, the resulting figures being thereafter modified to allow for the slight change between the date of the Census and the middle of the year (1932) in the age distribution of the total population of the country.

United Kingdom and Irish Free State.—The populations of each of the countries of the United Kingdom and of the Irish Free State as estimated by their respective Registrars-General, are shown for each year from 1893 in Table A.

MARRIAGES

The marriages registered in England and Wales during the year 1932 numbered 307,184, corresponding to a rate of 15·3 persons married per 1,000 of the population of all ages and conditions. The number so registered is 4,663, or 1·50 per cent. fewer than the number registered in 1931. (*See* Tables B and C.)

The current rate, though slightly below that of last year, 15·6, is not significantly different from the average rate for the ten years 1922–31 or the ten pre-war years 1905–1914, for both of which the rate was 15·4.

The preference for the third quarter, noticeable in the records since the beginning of the present century, was maintained in 1932, the marriages in this period being 30·9 per cent. of the total, while the fourth, formerly the outstanding favourite, now ranks second out of the four. The rate for the first quarter, representing 20·3 per cent. of the year's marriages, although retaining its customary place in being lower than that of any of the later quarters, was considerably higher than in recent years, and has gained at the expense of the second quarter. (*See* Table D.)

It may be observed here that by the Age of Marriage Act, 1929, the minimum age at which marriage may be contracted was made 16 in respect of each sex as from the 10th May, 1930, in place of the hitherto recognised minimum of 14 and 12 for males and females respectively; 1931 was thus the first complete year subject to the operation of the higher minimum age, but the effect on the total numbers is insignificant and the change has no material influence on the continuity of the statistical record.

In the following table (LXXVIII) the marriages both of the current year and of a series of past periods are compared with the unmarried population at all ages over 15. By eliminating the progressively falling proportion of children under 15 from the population at risk, the rates of recent years are scaled down slightly in relation to those of earlier periods, but the principal interest of the table is in showing the difference of the behaviour of the rates as between

Table LXXVIII.—Annual Number of Marriages of Men and Women per 1,000 Unmarried Population of each Sex aged 15 and over, 1871–1932.

NOTE.—For the census years 1871 to 1931 the annual numbers of marriages have been taken as the average of the three years about each census. From 1920 the rates for individual years are shown.

Year.	Bachelors, Widowers, Spinsters and Widows.	Bachelors and Widowers.	Spinsters and Widows.
1871	57·2	62·3	52·9
1881	51·5	56·0	47·6
1891	49·8	54·6	45·7
1901	48·7	53·5	44·7
1911	46·3	50·8	42·5
1921	54·1	62·7	47·6
1931	46·7	53·3	41·5
1920	61·7	71·5	54·7
1921	52·1	60·4	45·8
1922	48·2	55·8	42·5
1923	46·6	53·9	41·1
1924	46·6	53·6	41·2
1925	46·2	53·3	40·9
1926	43·4	50·0	38·3
1927	47·5	54·8	41·9
1928	46·4	53·7	40·9
1929	47·7	55·2	41·9
1930	47·8	55·6	42·0
1931	46·7	53·4	41·5
1932	46·1	52·5	41·0

the two sexes. The actual difference between the male and female ratios is of course due to the inequality of the numbers of unmarried men and women in the population and since the former have always been in a minority—which has been unduly exaggerated as a result of the war—it is their numbers which primarily determine the marriageability of the population, so that, from one point of view, the male ratios may be regarded as providing the better indexes to the variations which have occurred from time to time in the incidence of marriage.

Fluctuations of the general Marriage-rate in different Sections of the Country.—In Tables LXXIX and LXXX comparison is made of the year's marriages and marriage-rates in large geographical sections of the country, and an analysis of the rates in regions and counties is shown in Table F.

The determination of marriage-rates for localities is not wholly satisfactory for several reasons. In a large proportion of cases the district of registration is the district of residence of only one of the parties and in some cases of neither. This difficulty, however, is probably of less moment in comparisons between large sections of the country than between smaller adjacent localities. Again,

Table LXXIX.—Marriages of each year in Geographical Sections of the Country : 1914–1932.

Note :—For the constitution of the several Geographical Sections see Statistical Review, 1930, Part II, page 7.

Year.	North.	Midlands.	South.	Wales.	England and Wales.
1914 ..	100,926	87,695	85,728	20,052	294,401
1915 ..	115,694	109,844	113,868	21,479	360,885
1916 ..	90,287	84,895	87,322	17,342	279,846
1917 ..	83,151	78,761	80,356	16,587	258,855
1918 ..	92,381	87,798	89,928	17,056	287,163
1919 ..	125,863	111,180	107,971	24,397	369,411
1920 ..	136,443	114,942	102,930	25,667	379,982
1921 ..	110,864	97,218	91,831	20,939	320,852
1922 ..	101,335	91,657	86,610	19,922	299,524
1923 ..	99,640	89,483	83,152	20,133	292,408
1924 ..	100,400	92,035	84,252	19,729	296,416
1925 ..	99,301	92,172	84,882	19,334	295,689
1926 ..	89,777	89,146	84,617	16,320	279,860
1927 ..	102,245	97,750	88,867	19,508	308,370
1928 ..	98,642	96,381	89,499	18,706	303,228
1929 ..	102,058	101,130	90,981	19,147	313,316
1930 ..	101,777	101,588	92,528	19,216	315,109
1931 ..	99,733	101,976	91,212	18,926	311,847
1932 ..	100,486	99,000	88,330	19,368	307,184

it has only been possible, till recently, to tabulate marriages by registration areas, while the available estimates of population for years other than census years refer to administrative areas. The populations upon which the rates for such years are based have, therefore, to be derived from the estimated populations of the corresponding aggregates of administrative counties and county boroughs on the assumption of a ratio between the population of the registration and administrative areas. Any error so introduced is probably small and not likely to have any appreciable effect upon the rates quoted.

The order of the sectional frequencies is generally associated inversely with the proportion of unmarried males in the population of the several areas. Thus, of the four areas which return the highest marriage rates for males—Midland II, 56·0, North III, 55·9, South-East, 53·7, and North IV, 53·2,—three returned the lowest proportions of unmarried males to females at the last census—South-East, 711, North IV, 736, and North III, 794.

From the analysis in Table F it will be seen that, among the counties there compared, the 1932 marriage-rate was highest in

Table LXXX.—Marriage-rate per 1,000 Unmarried Population aged 15 and over in Geographical Sections of the Country.*

Area.	Ratio of unmarried males per 1,000 unmarried females aged 15 and over (Census 1931).	Rate per 1,000 Unmarried Population aged 15 and over.				Ratio of local rate to England and Wales rate (taken as 1,000).			
		1931.		1932.		1931.		1932.	
		Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
England and Wales.	778	53·4	41·5	52·5	41·0	1,000	1,000	1,000	1,000
South-East ..	711	56·2	39·9	53·7	38·3	1,052	961	1,023	934
North	796	52·0	41·4	52·8	42·2	974	998	1,006	1,029
North I ..	959	49·1	47·1	50·5	48·7	919	1,135	962	1,188
North II ..	866	47·9	41·5	47·1	40·9	897	1,000	897	998
North III ..	794	53·4	42·4	55·9	44·6	1,000	1,022	1,065	1,088
North IV ..	736	53·2	39·2	53·2	39·3	996	945	1,013	959
Midland ..	807	55·7	45·0	54·2	43·9	1,043	1,084	1,032	1,071
Midland I ..	797	55·1	44·0	53·3	42·7	1,032	1,060	1,015	1,041
Midland II ..	826	56·8	46·9	56·0	46·4	1,064	1,130	1,067	1,132
East	878	49·6	43·6	48·0	42·3	929	1,051	914	1,032
South-West ..	743	51·7	38·4	50·7	37·8	968	925	966	922
Wales	986	45·0	44·4	46·5	46·0	843	1,070	886	1,122
Wales I ..	1,060	46·4	49·3	48·4	51·6	869	1,188	922	1,259
Wales II ..	833	41·1	34·2	41·4	34·6	770	824	789	844

* For the constitution of the several sections, *see* page 7.

London, where it exceeded the mean for the country by 18·3 per cent. followed in order by Radnorshire, Nottinghamshire and Staffordshire, with excesses in the neighbourhood of 6–7 per cent.

Rural counties, with few exceptions, retain their customary place at the other end of the list. The City of London returns a rate five times as high as the average, and of the Metropolitan Boroughs, several have high rates, notably Holborn and Westminster, where rates more than twice the average are found. Such rates give support to the belief that many persons who usually live in the provinces or abroad come to London to be married. At the census of 1931 these three areas returned higher proportions of population living in hotels, boarding-houses, etc., than any of the other Metropolitan Boroughs.

Marriage-rates by ages, which should provide an even more exact statement of the incidence and intensity of marriage, are shown in Table LXXXI. As the rates in this table have reference only to periods in the neighbourhood of a census, their margin of error is much less than that to which rates are subject when based on estimates of population for post-censal years.

It will be observed from the last column of Table LXXXI, which compares the actual marriages of each year with a standard number, viz., those expected according to the age rates of 1921, and which makes allowance, therefore, for the changing age constitution of the unmarried population, that of the four sections distinguished, bachelors, widowers, spinsters, and widows, the 1932 frequencies are all lower than those of 1921, the percentages to the 1921 frequencies being, in order, spinsters 95, widowers 83, bachelors 81, and widows 70. On this basis of comparison the marriage frequencies of bachelors and widowers are higher than in 1911 but lower than in previous years: that for spinsters the frequency is nearly that of 1891; while for widows the frequency is much lower than any hitherto recorded for this class in the table.

From the age analysis shown in the earlier columns of Table LXXXI, it will be seen that the 1932 rates for all four sections have decreased as compared with those for 1921 in all age-groups from 20 to 55, and that the decrease among bachelors, widowers and widows is continued into the final group, age 55 and over. The only noteworthy increase occurs among spinsters under 20 years of age. The maintenance of the marriage-rate of young spinsters at a point well in excess of the corresponding rates of pre-war years has been a feature of the returns of recent years. With both bachelors and spinsters, the rates for the age period 25–35, at which practically one-half and one-third respectively of the marriages of these classes take place, are higher than those of any pre-war year shown in the table, while for bachelors the excess extends to all higher ages.

Widowers' and widows' rates as compared with 1921 show a consistent fall in all the age divisions identified. Widowers' rates are largely in excess of the corresponding bachelors' rates, except under 20 years of age, so that it may be said that re-marriages in the case of males are relatively more frequent than first marriages.

The same was, until recently, true of females, but the maintenance of the rates amongst young spinsters in conjunction with a heavy fall in respect of widows has destroyed the supremacy of the latter at ages under 20 and 25–35. The age analysis serves to call attention to the misleading nature of the comparison suggested by the

Table LXXXI. — Annual Marriage-rate per 1,000 Bachelors, Widowers, Spinsters, and Widows respectively at each of several Age Periods, 1871–1932.

NOTE.—The annual numbers of marriages have been taken as the average of the three years about each Census prior to 1921.

Year.	Annual marriage-rate per 1,000 in each age group.						Marriage-rate per 1,000 population over 15 in each class.	Ratio to corresponding rate for 1921.	Marriage-rate which would have resulted had the 1921 age rates been in operation.	Ratio of actual marriage rate (Col. 8) to rate in previous column (10).
	15—	20—	25—	35—	45—	55 and over.				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
				BACHELORS.						
1871 ..	6·0	122·4	119·3	43·3	15·3	3·2	61·7	987	62·3	990
1881 ..	4·6	106·8	112·4	40·5	14·3	3·0	55·7	891	62·4	893
1891 ..	3·1	94·7	122·4	43·4	15·2	3·5	54·8	877	63·8	859
1901 ..	2·5	85·9	123·7	44·2	14·6	3·3	54·7	875	66·6	821
1911 ..	2·2	74·8	120·6	44·4	14·9	3·9	52·6	842	69·2	760
1921 ..	3·4	94·4	161·1	61·6	19·7	5·5	62·5	1,000	62·5	1,000
1931 ..	3·3	72·5	140·8	52·3	18·0	5·7	56·2	899	67·5	833
1932 ..	3·4	69·5	137·8	51·0	16·8	5·2	55·5	888	68·6	809
				WIDOWERS.						
1871 ..	11·5	229·0	288·5	181·5	88·3	15·9	65·8	1,475	56·0	1,175
1881 ..	30·6	192·9	246·5	157·8	76·9	16·0	58·2	1,305	56·0	1,039
1891 ..	14·1	153·4	231·7	151·1	74·7	15·5	53·4	1,197	53·7	994
1901 ..	—	132·6	201·7	134·1	65·3	13·5	44·4	996	51·0	871
1911 ..	—	121·6	171·2	117·9	59·4	12·7	36·9	827	47·4	778
1921 ..	14·3	163·7	229·3	155·2	73·5	15·8	44·6	1,000	44·6	1,000
1931 ..	62·5	134·3	170·8	123·0	64·8	14·8	33·0	740	38·7	853
1932 ..	—	103·2	179·0	124·0	62·6	13·9	31·7	711	38·0	834
				SPINSTERS.						
1871 ..	26·8	133·7	85·9	30·4	11·9	1·7	63·1	1,164	55·8	1,131
1881 ..	21·5	121·9	80·6	26·3	10·4	1·6	56·9	1,050	55·8	1,020
1891 ..	16·2	112·4	85·7	26·4	10·3	1·7	54·4	1,004	57·1	953
1901 ..	12·9	104·9	88·6	25·3	9·1	1·5	53·0	978	58·6	904
1911 ..	11·2	97·7	91·1	24·4	8·5	1·8	50·6	934	58·0	872
1921 ..	14·8	114·4	100·0	25·6	8·9	2·0	54·2	1,000	54·2	1,000
1931 ..	17·0	106·5	96·9	22·3	8·2	2·2	51·8	956	53·9	961
1932 ..	17·7	104·8	96·3	22·1	7·8	2·1	51·6	952	54·1	954
				WIDOWS.						
1871 ..	55·4	170·5	125·5	55·7	20·8	2·6	21·1	1,172	19·6	1,077
1881 ..	56·6	155·3	114·5	50·2	18·6	2·6	18·2	1,011	18·5	984
1891 ..	49·3	150·4	114·3	50·3	17·8	2·4	16·3	906	16·8	970
1901 ..	54·9	140·7	115·9	48·9	15·6	2·1	14·4	800	15·6	923
1911 ..	30·0	151·2	114·1	48·9	15·6	2·1	12·5	694	13·6	919
1921 ..	36·1	191·4	120·3	50·6	17·6	2·5	18·0	1,000	18·0	1,000
1931 ..	55·6	105·8	90·4	33·4	13·7	2·2	8·7	483	11·8	737
1932 ..	14·3	153·2	84·8	31·9	12·4	2·1	8·0	444	11·4	702

aggregate marriages per 1,000 population shown in column 8 of Table LXXXI; owing to the concentration of the single population at the younger ages where marriages are numerous, and the widowed population at the later ages where they are few, the aggregate rate for the single of each sex appears to be vastly in excess of that of the widowed, whereas, if allowance be made for the difference in their age constitutions, the relative positions are modified and, for all age-groups among males and nearly all age-groups among females, are in favour of the widowed.

Table LXXXII shows how the proportions of first marriages and re-marriages have varied from 1918 to 1932. In 1932 there was a higher proportion of first marriages, and consequently, a lower proportion of re-marriages, than in any of the previous years.

Table LXXXII.—Proportions of First Marriages and Re-marriages in 1,000 Marriages, 1918–1932.

Year.	Men.		Women.		Bachelors who married		Widowers who married	
	Bachelors.	Widowers.	Spinsters.	Widows.	Spinsters.	Widows.	Spinsters.	Widows.
1918	901	99	894	106	837	64	57	42
1919	897	103	875	125	816	81	59	44
1920	907	93	894	106	839	68	55	38
1921	911	89	909	91	855	56	54	35
1922	913	87	920	80	866	47	54	33
1923	915	85	929	71	875	40	54	31
1924	916	84	932	68	880	36	53	31
1925	916	84	937	63	884	32	53	31
1926	917	83	940	60	887	30	53	30
1927	918	82	942	58	890	28	52	30
1928	921	79	943	57	893	28	50	29
1929	920	80	946	54	894	26	51	29
1930	923	77	949	51	897	25	51	27
1931	924	76	950	50	900	24	50	26
1932	925	75	953	47	903	22	50	25

Tables L and K, which now appear in Part II of this Review, continue the series shown in previous issues of the Text Volume (Tables LXXXVI and LXXXVII in the volume for 1930). They classify by age the marriages of a number of years, the former giving the mean ages of the persons married in each of the possible combinations and the latter extending the analysis into a number of age-groups. Table K shows that, during the last 45 years or so, the modal age of marriage has tended to increase steadily. In each

of the four sections the proportion marrying under 21 years of age has decreased. For bachelors, the most popular age has passed from 21–25 to 25–30, and for widowers, from 35–40 to 50–55; while for spinsters and widows, although the modal group has not changed —being throughout 21–25 for the former and 35–40 for the latter —the position of the mode has risen within the group. The distribution for 1932 as shown in Table K, and the average ages shown in Table L fluctuate in no significant way from the data of the previous few years.

Marriages of Minors.—Of the males married during the year, 13,403, or 4·36 per cent., were under the age of 21, and of the

Table LXXXIII.—Minors Married per 1,000 Marriages at all Ages, 1876–1932.

Year.	Husbands.	Wives.	Year.	Husbands.	Wives.
1876–80 ..	77·8	217·0	1920 ..	46·8	142·9
1881–85 ..	73·0	215·0	1921 ..	48·2	149·2
1886–90 ..	63·2	200·2	1922 ..	44·4	144·4
1891–95 ..	56·2	182·6	1923 ..	42·5	142·9
1896–1900 ..	51·2	168·0	1924 ..	40·4	140·3
1901–05 ..	46·3	153·1	1925 ..	40·6	142·3
1906–10 ..	40·3	139·4	1926 ..	43·3	147·5
1911–15 ..	39·2	136·6	1927 ..	41·4	146·1
1916–20 ..	42·6	133·3	1928 ..	43·5	151·5
1921–25 ..	43·3	143·9	1929 ..	41·8	151·7
1926–30 ..	42·5	150·5	1930 ..	42·6	155·3
1917	41·7	134·2	1931 ..	43·5	158·5
1918	42·6	129·0	1932 ..	43·6	160·4
1919	43·7	129·4			

females 49,278, or 16·04 per cent., as compared with 4·35 per cent., and 15·85 per cent. last year respectively (*see* Tables M and LXXXIII). Females, who have always greatly outnumbered the males in this class—in the present year the ratio is about $3\frac{2}{3}$ to 1 —naturally show the highest rates and the greatest changes in the rate; they formed 18·8 per 1,000 of the unmarried and widowed females aged 15–21 in 1911, were 26·6 in 1920, and are now 25·4, while the corresponding rates for males were 5·5, 8·8 and 6·8 per 1,000 respectively (*see* Table LXXXIV).

Comparative figures are shown in Table LXXXIV for certain years back to 1901, before which the age-group 15–21 was not identified in the population returns; an indication of the trend of youthful marriage-rates in earlier periods may be gained from Table LXXXIII.

The proportions of males and females marrying under age are summarised for regions in Table LXXXV, and the numbers are stated in Table M. Much of the variation there shown is but a reflex of the incidence of the general marriage-rate (Table LXXX),

Table LXXXIV.—Annual Marriage-rate per 1,000 Unmarried and Widowed Persons in the age-group 15–21 in 1901, 1911, 1921, 1931 and 1927–32.

Year.	Males.		Females.	
	Rate.	Ratio to 1921.	Rate.	Ratio to 1921.
1901	6·7	87	21·6	92
1911	5·5	71	18·8	80
1921	7·7	100	23·4	100
1931	6·7	87	24·8	106
1927	6·0	78	21·6	92
1928	6·2	81	22·1	94
1929	6·2	81	23·0	98
1930	6·4	83	24·0	103
1931	6·7	87	24·8	106
1932	6·8	88	25·4	109

and regard must necessarily be had to the latter in considering how far the former provides evidence of local custom regarding early marriage.

Table LXXXV.—Marriage-rate of Minors per 1,000 Unmarried Population aged 15–21 in Geographical Sections of the Country, 1931 and 1932.

Area.	1931.				1932.			
	Rate per 1,000 Unmarried Population 15–21.		Ratio of local rate to England and Wales rate taken as 1,000.		Rate per 1,000 Unmarried Population 15–21.		Ratio of local rate to England and Wales rate taken as 1,000.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
England and Wales.	6·7	24·8	1,000	1,000	6·8	25·4	1,000	1,000
South-East	6·2	22·9	925	923	5·9	22·4	868	882
North ..	7·2	25·7	1,075	1,036	7·7	27·3	1,132	1,075
North I ..	6·9	32·4	1,030	1,306	7·8	34·5	1,147	1,358
North II ..	6·1	28·8	910	1,161	7·5	29·7	1,103	1,169
North III ..	7·8	26·4	1,164	1,065	8·0	28·7	1,176	1,130
North IV ..	7·3	22·3	1,090	899	7·5	23·5	1,103	925
Midland ..	7·3	24·8	1,090	1,000	7·0	25·2	1,029	992
Midland I ..	6·5	23·0	970	927	6·4	23·5	941	925
Midland II	8·7	28·3	1,299	1,141	8·0	28·3	1,176	1,114
East	6·9	28·5	1,030	1,149	6·8	28·6	1,000	1,126
South-West ..	6·2	24·3	925	980	6·0	25·7	882	1,012
Wales ..	5·5	28·0	821	1,129	6·5	31·3	956	1,232
Wales I ..	6·0	31·2	896	1,258	7·6	34·7	1,118	1,366
Wales II ..	3·9	18·6	582	750	3·3	21·8	485	858

Divorces and Remarriages of Divorced Persons.—The annual numbers of marriages dissolved or annulled are shown in Table O and again in Table LXXXVI in terms of the persons involved, for each of the past twelve years and for each quinquennium back to 1876–80.

During the year 1932, 3,802 divorces and 92 annulments were obtained, the number of persons involved being twice these figures, or a total of 3,894 of each sex. The present figure is somewhat less than the record achieved in 1928 but with that exception it is higher than any previously recorded.

From Table LXXXVI it will be seen that the number of persons who on remarriage described themselves as divorced shows an increase and is greater than the corresponding figure recorded for any earlier year. The regularity and continuity of the analysis generally confirms the incidence of remarriage tendencies in this class, but it should be borne in mind that the numbers may understate the facts owing to misdescription of status in the registers.

In Table P are given certain particulars concerning the marriages in respect of which suits for dissolution or annulment were commenced during the year. 3,483 petitions were filed at the Principal Registry in London and 980 at 38 District Registries. In respect of the former it will be seen that the most frequent duration of marriage at the date of the commencement of the proceedings is from 5–10 years with an average of 209 for each of those years of duration, but the

Table LXXXVI.—Annual Number of Persons Divorced, and of Divorced Persons who Remarried, 1876–1932.

Period.	Number of Persons Divorced.	Annual Number of Divorced Persons who remarried.							
		Total.	Men.	Women.	Divorced men marrying spinsters.	Divorced men marrying widows.	Divorced men and women inter-marrying.	Divorced women marrying bachelors.	Divorced women marrying widowers.
1876–80 .. (Average)	554	104	56	48	42	12	4	31	15
1881–85 .. (Average)	671	128	68	60	53	12	6	42	15
1886–90 .. (Average)	707	169	80	89	65	11	8	65	20
1891–95 .. (Average)	744	214	110	104	89	15	12	75	23
1896–1900 .. (Average)	980	345	172	173	138	24	20	126	37
1901–05 .. (Average)	1,126	509	262	247	205	38	38	181	47
1906–10 .. (Average)	1,247	693	356	337	276	53	54	253	57
1911–15 .. (Average)	1,312	820	411	409	330	50	62	309	69
1916–20 .. (Average)	3,115	1,264	683	581	525	127	62	439	111
1921–25 .. (Average)	5,467	3,050	1,708	1,342	1,316	295	194	976	269
1926–30 .. (Average)	6,716	3,917	2,128	1,789	1,662	270	392	1,225	368
1921..	7,044	2,878	1,592	1,286	1,182	330	160	939	267
1922..	5,176	3,374	1,913	1,461	1,457	360	192	1,062	303
1923..	5,334	3,008	1,679	1,329	1,307	279	186	1,002	234
1924..	4,572	2,903	1,627	1,276	1,267	275	170	931	260
1925..	5,210	3,088	1,729	1,359	1,367	229	266	944	282
1926..	5,244	3,124	1,710	1,414	1,325	231	308	995	265
1927..	6,380	3,576	1,924	1,652	1,509	244	342	1,133	348
1928..	8,036	4,125	2,268	1,857	1,764	302	404	1,299	356
1929..	6,792	4,427	2,408	2,019	1,886	307	430	1,357	447
1930..	7,126	4,331	2,330	2,001	1,826	267	474	1,342	422
1931..	7,528	4,668	2,517	2,151	1,963	299	510	1,456	440
1932..	7,788	4,824	2,537	2,287	2,011	259	534	1,539	481

maximum is not of particular significance, for this period only accounts for 30 per cent. of the cases, there being 16 per cent. of shorter duration, while in 54 per cent. the marriages have subsisted for 10 years or more. Forty-two per cent. of the marriages in question were childless, and in a further 30 per cent. there was one child only.

Buildings in which Marriages may be Solemnized.—At the end of the year 1932 the numbers of churches or chapels of the Established Church and of the Church in Wales and of registered buildings in which marriages could be legally solemnized, were as follows :—

Established Church and Church in Wales	16,445
All other religious denominations ..	20,486
Total	36,931

The increase upon the numbers at the end of the previous year was :—Established Church and Church in Wales 31, other religious denominations 210. The number of these buildings belonging to

Table LXXXVII.

Denomination.	Buildings certified to the Registrar-General as meeting-places for Religious Worship.	Buildings registered for the Solemnization of Marriages.*
Roman Catholics	1,891	1,750
Methodist Church‡	14,128	8,546
Congregationalists	3,495	3,216
Baptists	3,351	3,022
Calvinistic Methodists	1,379	1,085
Presbyterians..	466	457
Unitarians	186	197
New Church	60	63
Catholic Apostolic Church	62	50
Countess of Huntingdon's Connexion	45	40
Salvation Army	1,406	329
Society of Friends	418	†
Jews	305	†
Other Denominations	4,791	1,731
All Denominations	31,983	20,486

* Of these buildings nearly 1,000 were certified before 1852, as Places of Meeting for Religious Worship, to some other authority than the Registrar-General and therefore are not included in the preceding column.

† It is not necessary for buildings to be registered for the solemnization of Quaker or Jewish marriages. Under section 31 of the Births, Deaths, and Marriages Registration Act (1836) Registering Officers of the Society of Friends and Secretaries of Jewish Synagogues who have been certified to the Registrar-General record the marriages in each case.

‡ Includes Wesleyan Methodists, Primitive Methodists and United Methodist Church.

the various denominations is shown for the several geographical regions in Table N.

By the Acts 15 and 16 Vict. c. 36, and 18 and 19 Vict. c. 81, it was enacted that all places of religious worship not being churches or chapels of the Established Church, should, if the congregations desired, be certified as such to the Registrar-General, certification for public religious worship being a necessary preliminary to the registration of a building for the solemnization of marriages.

The number of places of meeting for religious worship on the official register on the 31st December, 1932, and the number of buildings registered for the solemnization of marriages are shown in Table LXXXVII.

The Marriage Act, 1898, provided that under specified conditions marriages might be solemnized in registered buildings in the presence of duly authorised persons without the attendance of a Registrar of Marriages. The governing bodies of some of the registered buildings have availed themselves of this provision, and at the end of the year 1932, the number of such buildings which had been brought under the operation of the Act, and so remained, was 6,468 out of the total of 20,486. The numbers of these buildings, and the denominations to which they belonged, were as follows :—

4,268	Methodist Church.
930	Congregationalists.
663	Baptists.
158	Calvinistic Methodists.
449	Other Denominations and Unsectarian.
6,468	All Denominations.

LIVE BIRTHS.

The live births registered during 1932 numbered 613,972, corresponding to a birth-rate of 15·3 per 1,000 of the population living.

The number of births is 18,109 less than those of 1931, a decrease of 2·86 per cent.

The current rate of 15·3 per 1,000 is the lowest so far attained in the records of this country. The recent fall in the rate had been showing signs of diminution in immediately preceding years and it might have been inferred from the 1929 and 1930 figures that the particular phase of movement associated with post-war adjustments was drawing to a close with a tendency towards stabilisation at or about those levels. The 1931 returns, however, showed a further decline, and it would be useless to speculate, at the present time, as to where the trough of post-war depression may

be located. As explained on pages 147 and 148 the present rate of recruitment is well below that which is necessary if a diminution of the total population is to be avoided in the future.

The birth-rate in this country attained its highest values during the period 1865-1880, when it exceeded 35 per 1,000 population, and from that time it diminished by gradual and practically continuous stages to 23·8 in 1914; it is now 15·3 per 1,000, or considerably less than half the maximum figure of 36·3 recorded in 1876. The element of personal control in the matter of reproduction which alone can account for so great a change in the birth-rate over a period of a few decades must generally frustrate any attempt at statistical forecasting and the most that can be said is that, having regard to current economic and industrial conditions, the birth-rate appears likely for some time to remain low in relation to all earlier periods for which we have reliable records.

The recent history of the birth-rate in this country may be compared with those of other countries of which particulars are at hand by reference to Table Q. The record extends over the period from 1911 to 1932 (for earlier years, *see* the Registrar-General's Annual Report for 1910) and covers therefore not only the years of the war period itself when the movements were quite abnormal, but a number of earlier and later years sufficient to indicate the more prolonged changes which may probably be associated with the events of that period.

Of the countries for which 1932 returns are available, only one —Roumania—records increase in its birth-rate, three—Denmark, Norway, and Switzerland—are stationary, while the remaining 19 show decreases. In view of the further experience of this country, it is clear that tendencies cannot be discerned from the past year's movements that might herald any change of direction in the falling trends noted for most countries in the past decade.

In all the countries listed except France, Spain, Portugal, and Japan the recent rates show a large fall in comparison with pre-war experience, a fall which in respect of England and Wales is the more serious since the position of this country in relation to that of others was already a low one before the war, while to-day it is lower than any countries save Austria, Germany, and Sweden. The case of France is somewhat exceptional in that the current rate is not much lower than it was before the war, so that instead of being outstandingly the lowest in the series as formerly, it now ranks above England and Wales, Austria, Germany, Norway, Sweden, Switzerland, Australia, and New Zealand, and is equal to that of the United States.

The crude birth-rate, or ratio of births to population of all ages, is a convenient form of statement when the object in view is to record the aggregate effect of all the various factors governing reproduction. It sums up the effects of all the influences governing the rate at which the community is reproducing itself and is,

therefore, in conjunction with the corresponding form of mortality statement, the crude death-rate, the appropriate means of measuring natural increase. The number of births in the country, however, depends mainly upon the number of married women at the reproductive ages, and as they form less than one-eighth of the total population the variation of their numbers and ages over a period of time may be different from that of the whole population, in which case the crude birth-rates form but an imperfect measure of the changes in fertility, *i.e.*, of the rate of reproduction in proportion to the opportunity of reproduction. In the absence of any knowledge of the constitution of the general population the crude rate is often used as an index of fertility, but always on the implied assumption of a fixed proportion of potential mothers, an assumption which may only reasonably be made in respect of short periods of adjacent years.

In order to exclude the effect of changing age-constitution of the population, and so obtain a better statement of variations of fertility, a method of standardization was introduced in the Statistical Review (Text) for 1922, and has been in use since then. Since the birth registers do not contain any information as to the age of mothers, fertility rates cannot be obtained directly, and recourse must be had to an indirect method. So far as legitimate fertility is concerned rates may be derived from the census, which provides information as to the numbers of married women enumerated with their husbands, and the number of children under one year of age (as well as other children) in their families. By relating the numbers of children under one year of age to the mothers, classed according to age, a series of rates may be obtained which, when adjusted to yield the number of legitimate children born in England and Wales in the census year, may be regarded as reasonably close approximations to genuine fertility rates. The method of standardization consists, then, in (1) adopting as a standard of fertility the rates thus calculated, (2) applying them age by age to the married women in the area and for the period in question, and so obtaining a standard number of births which would have occurred had the standard fertility rates been operating, and (3) calculating the ratio of the actual births registered to the standard or expected number, the ratio forming an index by which the actual experience may be compared with the standard experience and hence with the actual experiences of other populations living in other areas or other periods. In common with all methods of standardization so far proposed, this method is subject to the limitations inseparable from any attempt to represent a distribution of facts or rates by means of a single constant.

The use of census data of the kind indicated as a basis for the calculation of fertility rates is not free from objection. The children include a number of step-children and adopted children, whose natural mothers, it may be supposed, had an age-distribution

differing somewhat from that of the mothers with whom they have to be statistically associated. Again, the children are but the survivors of those born during the preceding twelve months and no allowance is made for such differences in the mortality of children as are correlated with the age of mothers at the time of their birth. Moreover, the condition which restricts the married women to such as were enumerated with their husbands may have a selective effect and may thus introduce another element of error. But, notwithstanding these and other considerations, it is believed that neither the indirectness of the process nor the imperfections in the data are sufficiently important to impair seriously the accuracy of the results.

Table LXXXVIII.—Fertility by Age of Mother.

Country.	Age last birthday.					
	15–19.	20–24.	25–29.	30–34.	35–39.	40–44.
England and Wales.						
1921. Legitimate births per 1,000 married women* ..	397	334	260	194	130	56
Illegitimate births per 1,000 spinsters and widows	7·65	15·14	8 71	0·78	—	—
Births per 1,000 women (total)	15	101	152	135	96	42
1931. Legitimate births per 1,000 married women ..	372	267	187	127	81	33
Illegitimate births per 1,000 spinsters and widows	5·46	10·80	6·04	0·55	—	—
Births per 1,000 women (total)	12	77	112	94	61	24
Decrease of legitimate rates, per cent.	6	20	28	35	38	41
Bulgaria.						
1926-27. Births per 1,000 women (total)	36	227	244	190	132	64
Denmark.						
1926-30. Legitimate confinements per 1,000 married women	595	314	210	146	93	40
Illegitimate confinements per 1,000 not-married women.	16	28	20	14	10	4
France (still-births included).						
1931. Legitimate births per 1,000 married women ..	332	230	191	124	67	24
Illegitimate births per 1,000 spinsters and widows	8	25	21	16	12	4
Births per 1,000 women (total)	29	130	134	96	55	19
Italy.						
1931. Legitimate births per 1,000 married women ..	384†	345‡	261	199	146	68
Sweden.						
1930. Legitimate births per 1,000 married women ..	554	301	190	130	90	43
Illegitimate births per 1,000 spinsters and widows	13	31	22	16	10	4
Canada (excluding Yukon and North-West Territory).						
1931. Births per 1,000 women (total)	30	136	174	144	102	44

* The rates shown in the Statistical Review for 1922, which differ somewhat from those shown here, were based upon incomplete provisional data. Their use was continued up to 1931, in the belief that a standard derived from English data, even if imperfect, was to be preferred to an arbitrary standard or to a standard derived from foreign data. Comparisons between one year and another are not seriously affected, whatever standard be used.

† Age (last birthday) 15–20.

‡ Age (last birthday) 21–24.

With regard to illegitimate fertility the census provides no material from which rates may be derived, and use has again been made of the series of issue-rates upon which were based the standard rates shown in the Statistical Review for 1922. These rates have been adjusted to yield the number of illegitimate births registered in 1931. Although these issue-rates may not be fully representative of the general unmarried population in 1931, their use has been continued, in the absence of anything better, as

sufficiently accurate for the purpose of arriving at fertility rates for all women, and of completing the tables. As the proportion of illegitimate births is only 4·4 per cent. of the total, such errors as these rates contain are not likely to affect seriously the rates for all women taken together.

Fertility rates, calculated for England and Wales in 1921 and 1931 on the plan just described, are shown in Table LXXXVIII for married, unmarried and total women, and a series of rates for

Table LXXXIX.—Birth-rates and Fertility, 1871–1932.

	Births per 1,000 Total Population.	Ratio to 1931.	Births per 1,000 Married Women, 15–45.	Ratio to 1931.	Ratio of Actual Births to those which would have occurred had the Standard age rates been operating.
Legitimate Live Births.					
1870–72	33·3	2,205	292·5	2,380	2,148
1880–82	32·3	2,139	286·0	2,327	2,117
1890–92	29·4	1,947	263·8	2,146	1,983
1900–02	27·5	1,821	235·5	1,916	1,797
1910–12	23·4	1,550	197·4	1,606	1,592
1920–22	21·7	1,437	178·9	1,456	1,460
1930–32	15·1	1,000	122·4	996	999
1931	15·1	1,000	122·9	1,000	1,000
1932	14·6	967	117·9	959	964

	Births per 1,000 Total Population.	Ratio to 1931.	Births per 1,000 Unmarried Women, 15–45.	Ratio to 1931.	Ratio of Actual Births to those which would have occurred had the Standard age rates been operating.
Illegitimate Live Births.					
1870–72	1·96	2,800	17·0	2,982	2,886
1880–82	1·65	2,357	14·1	2,474	2,375
1890–92	1·31	1,871	10·5	1,842	1,755
1900–02	1·12	1,600	8·5	1,491	1,419
1910–12	1·03	1,471	7·9	1,386	1,363
1920 22	1·04	1,486	8·1	1,421	1,430
1930–32	0·71	1,014	5·8	1,018	1,002
1931	0·70	1,000	5·7	1,000	1,000
1932	0·67	957	5·6	982	974

	Births per 1,000 Total Population.	Ratio to 1931.	Births per 1,000 total Women, 15–45.	Ratio to 1931.	Ratio of Actual Births to those which would have occurred had the Standard age rates been operating.
All Live Births.					
1870–72	35·3	2,234	153·7	2,387	2,179
1880–82	34·0	2,152	147·7	2,293	2,128
1890–92	30 7	1,943	129·7	2,014	1,972
1900–02	28·6	1,810	114·8	1,783	1,779
1910–12	24·5	1,551	98·3	1,526	1,581
1920–22	22·8	1,443	91·1	1,415	1,459
1930–32	15·8	1,000	64·3	998	1,000
1931	15·8	1,000	64·4	1,000	1,000
1932	15·3	968	62·6	972	964

a few other countries, in such detail as is furnished by the relative reports, have been added for purposes of comparison. It may be noted that in England and Wales the rate is lower for each group

in 1931 than in 1921, and that the reduction in legitimate rates increases progressively from 6 per cent. at ages 15–19 to 41 per cent. at ages 40–44.

Summarized comparisons are given in the last column of Table LXXXIX for groups of three years about each census from 1871 to 1931, and for the individual years 1931 and 1932. The results are contrasted in that table with the more familiar comparisons given by the crude birth-rates whether calculated per 1,000 total population or per 1,000 married women between ages 15 and 45. Thus, in 1870–72, 2,148 legitimate births were recorded for every 1,000 that would have occurred under the standard fertility rates, the 1931 experience being in the aggregate less than half of that of 60 years before. From 1871 the rates diminished steadily and progressively to 1,592 in 1910–12. Since 1920–22 the even more rapid drop, commented upon in dealing with the crude rates, is shown by the further reductions in the index, from 1,460 to 1,000 in 1931. It will be observed that over the earlier years shown in the table the decrease in fertility was overstated by the crude rates, and that since 1920–22 the tendency has been in the other direction.

Illegitimate Births.—The live births registered during 1932 include 27,011 of illegitimate children, a decrease of 1,075 on the number in 1931, coincident with the decrease of 18,109 in total births. Illegitimate births have thus decreased by 3·8 per cent., and legitimate births by 2·8 per cent. As a result of these changes, the proportion of illegitimate to total births has fallen from 4·44 per cent. last year to 4·40 per cent., figures which compare with the minimum of 3·95 per cent. recorded for the period 1901–1905 and the maximum of 6·26 per cent. attained in 1918.

In addition to the crude rate comparison, an attempt has been made in Table LXXXIX to allow for the age distribution of the potential mothers in respect of illegitimate as well as legitimate births in the manner described above. In using the rates for illegitimate fertility, it must be remembered that they are of much less authority than the rates for legitimate fertility.

Birth-rates of Different Parts of the Country.—The birth-rates, total and illegitimate, of individual administrative areas tabulated in Table E are summarized in Table XC for the geographical regions, and their sub-divisions.

The method employed in earlier paragraphs for comparing the fertility of England and Wales in different years by the use of standard fertility rates applies equally well to the comparison of fertility in different sections of the population of which the sex, age and marital condition constitution is known, and the crude rate comparisons are supplemented in this table by the addition of a series of figures in which variations in birth-rates due solely to differences in the age and marital condition proportions of the several populations, as far as possible, have been eliminated.

Table XC.—Birth-rates by Geographical Regions, 1931 and 1932.

(For the constitution of the several regions, see page 7).

	All Births.				Illegitimate Births.			
	Birth-rate per 1,000 Total Population.	Ratio to Rate for England and Wales, taken as 1,000 (Crude Rates).	Ratio of Actual Births per 1,000 of those which would have occurred had the Standard age rates been operating.	Ratio compared with that for England and Wales, taken as 1,000.	Birth-rate per 1,000 Total Population.	Ratio to Rate for England and Wales, taken as 1,000 (Crude Rates).	Ratio of Actual Births per 1,000 of those which would have occurred had the Standard age rates been operating.	Ratio compared with that for England and Wales, taken as 1,000.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1931								
England and Wales ..	**15·8**	**1,000**	**1,000**	**1,000**	**0·70**	**1,000**	**1,000**	**1,000**
Regional Summary—								
South-East	15·0	949	949	949	0·68	971	919	919
Greater London ..	15·2	962	932	932	0·66	943	832	832
Remainder of South-East.	14·8	937	979	979	0·71	1,014	1,083	1,083
North	16·3	1,032	1,028	1,028	0·72	1,029	1,029	1,029
North I	19·0	1,203	1,169	1,169	0·79	1,129	1,257	1,257
North II	17·5	1,108	1,153	1,153	0·98	1,400	1,489	1,489
North III	15·4	975	936	936	0·66	943	952	952
North IV	15·6	987	1,004	1,004	0·68	971	915	915
Midland	16·5	1,044	1,021	1,021	0·65	929	934	934
Midland I	16·7	1,057	1,053	1,053	0·62	886	885	885
Midland II	16·2	1,025	964	964	0·70	1,000	1,031	1,031
East	15·8	1,000	1,056	1,056	0·88	1,257	1,425	1,425
South-West	14·4	911	980	980	0·66	943	1,027	1,027
Wales	16·3	1,032	1,063	1,063	0·74	1,057	1,166	1,166
Wales I	16·8	1,063	1,033	1,033	0·64	914	1,034	1,034
Wales II	15·1	956	1,165	1,165	1·02	1,457	1,497	1,497
Density Summary of all Areas outside Greater London—								
County Boroughs ..	16·5	1,044	1,030	1,030	0·74	1,057	1,017	1,017
Other Urban Districts	15·5	981	979	979	0·65	929	962	962
Rural Districts ..	15·8	1,000	1,066	1,066	0·75	1,071	1,246	1,246
1932.								
England and Wales ..	**15·3**	**1,000**	**964**	**1,000**	**0·67**	**1,000**	**974**	**1,000**
Regional Summary—								
South-East	14·5	948	910	944	0·67	1,000	914	938
Greater London ..	14·6	954	890	923	0·65	970	830	852
Remainder of South-East.	14·3	935	945	980	0·69	1,030	1,074	1,103
North	15·9	1,039	998	1,035	0·70	1,045	1,018	1,045
North I	18·5	1,209	1,130	1,172	0·76	1,134	1,230	1,263
North II	17·0	1,111	1,119	1,161	0·96	1,433	1,487	1,527
North III	15·1	987	914	948	0·67	1,000	996	1,023
North IV	15·2	993	972	1,008	0·64	955	876	899
Midland	15·8	1,033	975	1,011	0·60	896	881	905
Midland I	16·0	1,046	1,002	1,039	0·58	866	836	858
Midland II	15·6	1,020	927	962	0·65	970	969	995
East	15·3	1,000	1,023	1,061	0·86	1,284	1,416	1,454
South-West	13·9	908	943	978	0·61	910	972	998
Wales	15·8	1,033	1,026	1,064	0·67	1,000	1,078	1,107
Wales I	16·2	1,059	991	1,028	0·59	881	987	1,013
Wales II	14·9	974	1,146	1,189	0·86	1,284	1,303	1,338
Density Summary of all Areas outside Greater London—								
County Boroughs ..	16·0	1,046	991	1,028	0·71	1,060	994	1,021
Other Urban Districts	15·0	980	945	980	0·61	910	927	952
Rural Districts ..	15·4	1,007	1,035	1,074	0·72	1,075	1,220	1,253

Table XC shows for each of the specified divisions of the country the crude birth-rates of 1931 and 1932, the ratio of the crude rate to that of the country as a whole, and the corresponding ratio obtained by the use of the standard fertility rates of 1931.

The birth changes which have occurred between 1931 and 1932 in the geographical regions and types of area shown in the table are in general consonance with the movement in the country as a whole. Comparison of the crude rates for the several areas shows that the highest for all births are found in North I and II, and the lowest in the South-West and in the portion of the South-East outside Greater London. Crude rates for illegitimate births are highest in Wales II and North II, and lowest in Midland I and Wales I.

Among the regional rates, the ratios of which are shown in Table XCI, Wales took the first place from 1921 to 1926, was equal with the North in 1927, and second to the North from 1928 except in 1931, when equality was again recorded. The lowest ratios have occurred consistently in the South.

These percentages are based upon the crude rates and reflect therefore not only differences of fertility but also the varying incidence of sex, age, and marital condition in the populations from which they arise. When the latter factors are eliminated as in column 4 of Table XC, the standardized ratio of North I retains the highest place, but in several instances the process results in altering materially the relative position of an area; for instance, the ratio for Wales II rises from 974 (crude) to 1,189 (standardized). If the areas be examined from the point of view of urbanization the change from the crude to the standardized comparison is also notable. By the crude rates the position of rural areas is distinctly understated, since from the point of view of fertility alone they are shown to be the most productive of all areas.

Table XCI.—Birth-rate of Different Sections of the Country per cent. of that of England and Wales, 1921–32.

——	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.
North ...	106	104	104	106	105	106	104	105	104	104	103	104
Midlands	99	100	99	99	99	99	102	101	101	101	} 98	97
South ...	91	94	94	92	92	92	93	93	93	93		
Wales ...	112	107	110	112	110	108	104	104	102	102	103	103

The extent of illegitimacy in different classes of area and parts of the country may be gathered from the right half of Table XC. Except for a wider range of variation generally the distribution is not significantly different from that of all births. The highest rates occur as a rule in the rural districts. It will

be seen that whereas for all births the rural aggregate rate is 7·4 per cent. above the mean, for illegitimate only it is 25·3 per cent. above.

Sex Proportions at Birth.—Births of males in England and Wales in 1932 numbered 314,407, and those of females 299,565; the proportion of male to female births was 1,050, 1,042, and 1,050 to 1,000 for legitimate, illegitimate, and total births respectively. The corresponding proportions for total births in each year from 1892 onwards and in groups of years since the commencement of registration are shown in Table C (Part II). The extreme range during the last 50 years was from 1,032 per 1,000 in 1898 to 1,060 in 1919. During this period the highest ratio recorded prior to the war was 1,041 (in 1884, 1906 and 1909), which has also been the lowest point touched since 1919 (in 1926).

The extent to which different classes of area or portions of the country contribute to the preponderance of male births is shown in Table XCII. In 1931 the highest ratio, 1,073, occurred in the South-West, and the lowest, 1,029, in the East; in 1932, the highest, 1,066, in Wales II, and the lowest, 1,036, in the South-East (excluding Greater London) and in North II. The inconsistency of the 1931 and 1932 series of ratios is illustrated by North II, which recorded the

Table XCII.—Male Births per 1,000 Female Births, 1931 and 1932.

	1931.	1932.
England and Wales	**1,049**	**1,050**
Regional Summary—		
South-East	1,047	1,046
Greater London	1,048	1,052
Remainder of South-East	1,046	1,036
North	1,045	1,050
North I	1,050	1,054
North II	1,072	1,036
North III	1,041	1,046
North IV	1,040	1,054
Midland	1,054	1,053
Midland I	1,052	1,048
Midland II	1,058	1,064
East	1,029	1,040
South-West	1,073	1,057
Wales	1,056	1,057
Wales I	1,060	1,054
Wales II	1,043	1,066
Density Summary of all Areas outside Greater London—		
County Boroughs	1,043	1,047
Other Urban Districts	1,057	1,050
Rural Districts	1,048	1,052

Table XCIII.—Live Births in

Area.*	1932. Number of Births. In Public Assistance Institutions. Legitimate.	Illegitimate.	In Hospitals, Nursing Homes and Maternity Homes. Legitimate.	Illegitimate.	Percentage of Total live births in area occurring in Institutions.
England and Wales	37,065	6,574	98,901†	4,630†	24·0
Regional Summary:					
South East	15,393	3,010	45,882	2,175	33·7
North	15,879	2,047	29,060	1,453	23·1
North I	521	239	3,813	278	11·6
„ II	57	58	2,581	243	13·4
„ III	3,868	481	7,987	404	24·5
„ IV	11,433	1,269	14,679	528	29·8
Midland	4,838	937	14,288	490	18·6
Midland I	3,700	664	9,727	365	19·8
„ II	1,138	273	4,561	125	16·4
East	184	179	2,894	160	12·2
South West	291	169	4,203	256	17·4
Wales	480	232	2,574	96	8·2
Wales I	401	189	1,927	74	8·4
„ II	79	43	647	22	7·7
Administrative Counties together with Associated County Boroughs:—					
Bedford	83	30	471	28	19·5
Berks	268	58	562	26	20·2
Buckingham	14	14	474	22	13·7
Cambridge	21	17	223	18	15·6
Chester	508	123	2,474	80	21·4
Cornwall	18	24	236	21	6·9
Cumberland	11	21	496	51	13·2
Derby	209	49	2,135	40	20·0
Devon	231	90	1,529	99	19·5
Dorset	12	20	478	22	16·0
Durham	360	153	1,674	81	8·0
Ely, Isle of	12	8	62	1	6·2
Essex	839	176	4,594	143	21·9
Gloucester	485	100	2,289	109	25·3
Hereford	16	16	94	3	7·8
Hertford	359	33	1,013	44	25·6
Huntingdon	2	7	11	—	2·3
Kent	349	172	3,139	69	21·1
Lancaster	10,925	1,146	12,205	448	31·4
Leicester	106	70	1,583	41	21·5
Lincoln, Holland	16	10	6	—	1·9
„ Kesteven	5	13	115	3	7·7
„ Lindsey	16	31	1,079	87	17·7
London	9,152	1,607	22,727	1,215	51·5
Middlesex	2,393	316	3,305	71	27·1
Norfolk	80	53	758	27	12·2
Northampton	17	16	337	20	9·8
Northumberland	161	86	2,139	197	19·2
Nottingham	804	131	463	21	11·9
Oxford	11	29	812	23	28·8
Peterborough, Soke of	2	7	43	3	7·3
Rutland	—	—	—	—	—
Salop	129	60	470	31	18·4
Somerset	17	28	939	64	16·7
Southampton	320	160	3,112	177	23·3
Stafford	1,179	185	1,920	49	13·4
Suffolk, East	5	11	233	5	5·7
„ West	27	29	407	19	34·1
Surrey	1,277	242	4,109	241	36·1
Sussex, East	317	147	1,232	87	26·2
„ West	6	19	232	15	9·2
Warwick	1,831	269	4,264	139	26·2
Westmorland	—	—	123	28	16·7
Wight, Isle of	5	7	100	14	11·7
Wilts	13	7	1,021	50	24·8
Worcester	60	34	690	34	13·2
Yorks, East Riding	15	7	1,227	116	15·8
„ North „	31	30	735	48	10·6
„ West „	3,858	465	7,825	395	24·6
York C.B.	10	16	162	9	17·7
Anglesey	4	7	9	—	2·8
Brecknock	1	1	25	3	3·6
Caernarvon	12	7	183	4	12·3
Cardigan	3	1	34	2	5·7
Carmarthen	3	4	49	2	2·3
Denbigh	47	3	119	12	7·4
Flint	10	12	170	—	11·8
Glamorgan	384	152	1,552	62	10·7
Merioneth	—	4	16	—	3·5
Monmouth	13	32	301	7	4·8
Montgomery	—	4	63	3	9·2
Pembroke	2	5	42	1	3·6
Radnor	1	—	11	—	3·4

* For constitution of geographical regions *see* p. 7.

Institutions, 1927 and 1932.

1927.								
Percentage of total legitimate or illegitimate births in area.				Percentage of Total live births in area occurring in Institutions.	Percentage of total legitimate or illegitimate births in area.			
In Public Assistance Institutions.		In Hospitals, Nursing Homes and Maternity Homes.			In Public Assistance Institutions.		In Hospitals, Nursing Homes and Maternity Homes.	
Legitimate.	Illegitimate.	Legitimate.	Illegitimate.		Legitimate.	Illegitimate.	Legitimate.	Illegitimate.
6·3	24·3	16·8	17·1	15·0	2·5	19·5	11·4	17·0
8·2	32·2	24·4	23·3	23·7	3·8	23·8	18·5	27·9
7·9	22·2	14·5	15·7	13·0	2·8	17·9	9·3	14·3
1·3	14·3	9·5	16·6	8·2	0·4	10·7	6·8	14·0
0·3	4·8	12·5	20·1	8·0	0·8	10·9	7·1	10·6
7·8	20·2	16·1	17·0	13·1	1·5	13·6	10·7	18·9
12·8	31·9	16·4	13·3	16·3	5·1	25·3	10·2	12·8
4·6	22·9	13·5	12·0	11·4	1·9	19·8	8·7	9·5
5·3	25·7	13·8	14·1	11·6	2·6	23·0	8·1	10·8
3·2	18·0	12·8	8·2	10·8	0·4	14·3	9·9	7·3
0·7	12·0	10·9	10·7	6·3	0·3	13·6	5·2	6·3
1·1	14·2	15·5	21·5	11·0	0·3	15·4	9·7	15·7
1·2	14·1	6·5	5·9	4·6	0·3	14·8	3·6	7·2
1·4	17·3	6·5	6·8	4·9	0·3	16·7	3·9	9·6
0·8	7·8	6·7	4·0	3·8	0·4	11·4	2·7	3·0
2·8	20·5	15·8	19·2	6·3	0·6	11·7	4·5	20·0
6·2	26·5	13·0	11·9	13·3	0·7	19·5	11·8	9·5
0·4	9·9	12·9	15·5	4·0	0·2	16·0	3·4	1·9
1·2	19·1	13·1	20·2	11·4	0·4	6·3	9·9	30·0
3·5	21·5	17·3	14·0	12·4	2·0	15·2	9·8	11·2
0·4	12·4	5·7	10·8	4·9	0·4	18·4	3·3	10·5
0·3	7·7	12·1	18·8	6·1	0·2	5·3	5·5	8·6
1·8	12·4	18·2	10·1	12·6	0·2	10·4	12·2	6·5
2·4	19·5	16·1	21·4	14·9	0·4	16·2	13·3	21·7
0·4	16·1	14·9	17·7	7·7	0·3	14·7	6·7	10·3
1·3	14·9	6·1	7·9	5·1	0·3	10·0	4·4	6·5
0·9	11·4	4·9	1·4	2·7	0·4	15·8	1·5	—
3·3	22·4	18·0	18·2	14·5	1·6	22·8	12·3	11·8
4·3	22·7	20·2	24·7	18·4	0·7	15·3	16·5	26·8
1·0	17·8	6·0	3·3	4·3	0·3	13·6	3·1	5·8
6·5	17·6	18·5	23·5	15·3	3·3	32·8	11·0	11·7
0·2	17·9	1·3	—	1·7	0·1	14·6	1·0	—
2·1	24·2	18·5	9·7	14·5	1·2	17·4	12·9	6·8
14·5	33·7	16·2	13·2	17·0	5·7	27·0	10·3	13·0
1·3	20·5	19·7	12·0	16·1	0·5	14·9	15·1	12·1
1·0	11·1	0·4	—	1·0	0·3	11·7	0·1	—
0·3	11·9	7·0	2·8	5·2	0·2	12·1	4·5	1·7
0·2	7·5	16·8	21·0	5·7	0·2	12·6	4·8	3·4
14·4	41·1	35·8	31·1	35·9	6·3	26·3	27·7	43·6
11·1	39·2	15·3	8·8	17·9	6·5	26·6	10·9	7·9
1·1	13·4	10·6	6·8	8·2	0·5	15·1	6·6	9·8
0·4	10·3	8·8	12·8	5·9	0·2	13·9	4·8	10·6
1·3	13·4	16·7	30·6	13·9	0·7	11·9	12·0	27·3
7·1	22·5	4·1	3·6	7·2	0·6	17·5	5·8	4·7
0·4	20·0	28·1	15·9	22·3	0·5	18·0	20·9	23·7
0·3	16·3	6·1	7·0	4·5	0·4	8·2	3·7	2·0
—	—	—	—	0·4	—	—	0·4	—
3·6	29·9	13·2	15·4	9·4	0·7	15·7	8·1	3·5
0·3	11·9	15·5	27·1	8·8	0·3	13·0	7·6	18·0
2·1	19·3	20·3	21·3	21·4	0·8	16·9	19·7	21·5
4·9	23·3	8·0	6·2	4·6	1·4	18·6	2·6	5·9
0·1	5·3	5·5	2·4	4·5	0·2	14·5	3·6	5·6
2·0	42·6	30·2	27·9	11·4	0·5	20·0	10·4	2·9
8·3	29·9	26·6	29·8	20·7	3·7	29·8	15·4	22·3
5·0	33·9	19·4	20·0	15·8	1·0	17·9	13·3	21·2
0·2	11·5	8·3	9·1	9·0	0·8	24·8	6·7	13·5
7·6	31·2	17·8	16·1	18·9	5·9	37·0	11·9	9·6
—	—	14·8	38·9	12·4	0·1	6·8	11·1	25·4
0·5	10·8	9·9	21·5	4·9	0·3	4·4	4·6	2·2
0·3	4·0	24·2	28·4	14·0	0·2	13·5	13·5	6·8
1·0	17·6	11·5	17·6	3·8	0·3	14·4	2·8	7·6
0·2	1·5	15·0	25·3	10·6	0·3	13·4	9·2	16·6
0·4	7·4	9·7	11·9	7·3	1·6	12·1	5·3	2·3
7·9	20·1	16·1	17·1	13·0	1·5	13·0	10·6	19·2
1·0	24·2	15·5	13·6	14·6	0·7	35·1	12·3	8·1
0·6	10·1	1·4	—	0·9	—	10·6	—	—
0·1	2·6	3·1	7·9	1·8	0·1	9·3	1·2	—
0·8	7·1	11·6	4·1	5·3	0·5	17·2	3·3	7·5
0·5	1·7	5·3	3·4	3·7	—	6·6	3·0	4·9
0·1	4·2	2·0	2·1	0·7	0·1	10·9	0·1	—
2·0	3·0	5·1	12·0	3·9	0·8	7·8	2·7	3·1
0·6	17·4	10·9	—	6·4	0·6	15·6	5·1	4·4
2·0	21·3	8·0	8·7	6·4	0·4	19·2	5·1	12·8
—	10·8	3·0	—	0·8	0·5	6·3	—	—
0·2	13·0	4·2	2·8	2·9	0·2	13·7	2·1	6·7
—	8·5	8·8	6·4	2·5	0·2	11·3	1·6	—
0·2	9·3	3·2	1·9	1·6	—	7·8	1·2	—
0·3	—	3·3	—	5·6	—	20·8	4·5	—

† Including Births in Mental Institutions, viz., 4 Legitimate and 4 Illegitimate.

lowest ratio in 1932 and almost the highest in 1931; and by Wales II, highest in 1932, and one of the lowest in 1931. In view of the wide differences found in the two years for the various areas, it is remarkable that the combined ratio for England and Wales has changed so little.

Births in Institutions.

In the Statistical Review for 1927, a table was given in which the births registered in that year were analysed according to the type of institution in which they occurred, two types being distinguished, namely, those under the poor law, and other institutions (Text, p. 126). Some comparative figures for 1920 were included. For 1932, the births have again been analysed with respect to place of occurrence, and the results are shown in Table XCIII, the first type of institutions being described as "public assistance institutions" and the second as "hospitals, nursing homes and maternity homes." For England and Wales as a whole, the number of births recorded as occurring in all classes of institutions in 1932 was 147,170, or 24·0 per cent. of the total live births. This corresponds to 97,933, or 15·0 per cent. in 1927, the increase both for numbers and proportions being over 50 per cent. In public assistance institutions the numbers were 43,639, or 7·1 per cent. in 1932, 21,510, or 3·3 per cent. in 1927, and 12,167, or 1·3 per cent. in 1920. In hospitals, nursing homes and maternity homes the numbers were 103,531, or 16·9 per cent. in 1932 and 76,423, or 11·7 per cent. in 1927. Of legitimate births 6·3 per cent. occurred in public assistance institutions and 16·8 per cent. in hospitals, etc., comparing with 2·5 and 11·4 in 1927, while for illegitimate births the percentages were 24·3 and 17·1, as against 19·5 and 17·0 in 1927. It appears, therefore, that the proportion of legitimate births taking place in institutions has increased much more than the proportion of illegitimate births.

In studying the geographical distribution, whether by regions or by counties, it is to be remembered that the classification is by area of occurrence, and not by area of residence. It follows, therefore, that the highest proportions tend to be found in those areas where the largest amount of lying-in accommodation is available. The great increase which has taken place in the numbers of those seeking institutional treatment is due in part to increases in the facilities for such treatment, but is also partly assignable to changes, both economic and sentimental, in the outlook of expectant mothers. The reluctance shown in the past to enter certain classes of institutions is being gradually overcome, and this, together with the superiority of much institutional practice, the unsuitability of many present-day dwellings for maternity patients, and the general economic depression, probably account for the changes which are so rapidly taking place.

STILLBIRTHS.

Stillbirths registered in England and Wales as a whole are shown for each year in Part II, Table B, and for each quarter in Table D. The numbers occurring in metropolitan and county boroughs, and in the aggregates of urban and of rural districts in administrative counties are shown in Part I, Table 18, to which is prefixed a summary for the several larger regions into which the country is divided.

In England and Wales the stillbirths registered during 1932 numbered 26,471 in all, 14,523 being males and 11,948 females; the numbers representing 41, 44 and 38 per 1,000 total births or 43, 46 and 40 per 1,000 live births respectively. The total compares with the figure of 26,933 recorded last year.

Prior to 1st July, 1927, the date on which stillbirth registration became operative in this country under the Births and Deaths Registration Act, 1926, the only record of stillbirths in England and Wales was that obtained from notifications received by Medical

Table XCIV.—Stillbirths, 1932.

Area.	Stillbirths per 1,000 total births.					Stillbirths per 1,000 total births and Live Births per 1,000 population expressed in relation to corresponding rate for England and Wales taken as 1,000.				Stillbirths per 1,000 total births and Infant Mortality per 1,000 live births expressed in relation to corresponding rate for England and Wales taken as 1,000.		
	Total.	Legitimate.		Illegitimate.		Stillbirths.		Live Births.		Still-births.	Deaths under 4 weeks.	Deaths under 1 year.
		Males.	Fe-males.	Males.	Fe-males.	Legiti-mate.	Illegi-timate	Legiti-mate.	Illegi-timate			
England and Wales ..	**41·3**	**44**	**38**	**56**	**49**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**
Regional Summary—												
South-East	33·2	35	30	48	43	799	867	945	1,000	804	829	856
Greater London ..	31·6	33	29	49	45	757	890	952	970	765	820	916
Remainder of South-East.	35·6	37	33	47	41	863	837	932	1,030	862	844	761
North	46·7	50	43	59	52	1,135	1,049	1,041	1,045	1,131	1,130	1,171
North I	44·1	47	40	60	53	1,069	1,070	1,212	1,134	1,068	1,184	1,225
North II	41·7	45	38	56	45	1,007	958	1,103	1,433	1,010	1,145	1,079
North III	47·1	50	43	59	51	1,145	1,045	986	1,000	1,140	1,124	1,133
North IV	48·8	52	45	59	54	1,189	1,072	1,000	955	1,182	1,105	1,190
Midland	40·7	43	37	59	50	983	1,032	1,041	896	985	1,045	1,010
Midland I ..	39·8	42	36	54	52	963	1,002	1,055	866	964	1,058	1,018
Midland II ..	42·5	44	39	70	46	1,027	1,087	1,021	970	1,029	1,018	995
East	39·6	42	36	44	55	956	930	993	1,284	959	915	821
South-West	41·1	43	37	71	56	980	1,212	911	910	995	924	790
Wales	55·6	58	52	74	56	1,353	1,244	1,041	1,000	1,346	1,149	1,064
Wales I	57·1	59	54	83	53	1,387	1,303	1,068	881	1,383	1,179	1,096
Wales II	51·2	54	47	59	60	1,243	1,133	959	1,284	1,240	1,060	969
Density Summary of all Areas outside Greater London—												
County Boroughs	43·5	46	40	60	51	1.054	1,055	1,041	1,060	1,053	1,074	1,147
Other Urban Districts.	45·4	48	42	60	49	1,103	1,040	986	910	1,099	1,045	964
Rural Districts ..	41·5	43	39	52	49	1,007	964	1,007	1,075	1,005	992	890

Officers of Health. These were published in the successive reports, from 1919 onwards, of the Chief Medical Officer to the Ministry of Health and were summarised in the 1927 Statistical Review. (Text p. 128.)

The distribution of the total according to sex, legitimacy and geographical incidence is shown in Table 18 of Part I of the Statistical Review, and is summarised in rate form in Table XCIV; in the latter have been included columns from which comparisons may be made between the incidence of stillbirths on the one hand and that of live births or of infant mortality on the other. Wherever the numbers are large enough to form a satisfactory basis of fact, the frequency of stillbirth amongst males is shown to be definitely greater than it is amongst females. The male excess for legitimate births is the same as that of last year, and it is maintained with considerable uniformity throughout the several sections distinguished. Similarly, as between legitimate and illegitimate births, the latter exhibits the higher rates in all sections (Wales I excepted), the amount of the excess being on a somewhat larger scale than that indicated in the comparison between the sexes.

As regards areal comparison, Wales returns legitimate stillbirth frequencies markedly higher than those of any English sections, which among themselves decrease generally from the North, where the rate is about 13 per cent. in excess of the general average, to the South-East where it is 20 per cent. below. The contrasts are not so consistent among the illegitimate frequencies.

The relative positions in the various portions of the country and the close association in this respect between stillbirths and infantile deaths are brought out in the columns of the table in which the stillbirth rate and infantile mortality rate of the year are expressed in relation to that of the country at large, the latter being taken as 1,000 in each case. The similarity of incidence is marked in comparisons made with the mortality of the full first year of life,

Table XCV.—Stillbirths, 1932. Range of local variation. Stillbirths per 1,000 total births.

Metropolitan Boroughs.		County Boroughs.		Urban Aggregates (Excluding County Boroughs)		Rural Aggregates.	
		Highest.					
Shoreditch	36	Merthyr Tydfil ..	72	Monmouthshire ..	59	Merionethshire ..	76
Hackney	35	Southport ..	66	Denbighshire ..	59	Carmarthenshire ..	62
Bermondsey ..	34	Dewsbury ..	63	Glamorganshire ..	59	Cardiganshire ..	61
Islington	34	Huddersfield ..	60	Flintshire	58	Glamorganshire ..	57
St. Marylebone ..	34	Bury	59	Carmarthenshire ..	56	Caernarvonshire ..	54
		Lowest.					
Paddington.. ..	28	Southampton ..	33	Southampton ..	31	Bedfordshire ..	30
St. Pancras.. ..	28	Eastbourne ..	30	Norfolk	29	Northamptonshire	30
Deptford	26	Worcester ..	30	Wight, Isle of ..	29	Warwickshire ..	27
Hampstead ..	26	West Ham ..	29	Dorsetshire ..	29	Middlesex	24
Finsbury	21	Northampton ..	29	Hertfordshire ..	25	Hertfordshire ..	20

but the parallelism is found usually to be even closer when the comparison is restricted to the deaths occurring within the four weeks immediately following birth.

Some idea of the local variation of stillbirths may be obtained from Table XCV which shows the boroughs and the county urban and rural aggregates exhibiting the highest and lowest rates per 1,000 total births in 1932. Areas in which less than 20 stillbirths were registered have been omitted.

NATURAL INCREASE.

In 1932 the excess of live births over deaths registered in England and Wales was 129,843, as compared with 140,451 in 1931, 193,384 in 1930, 111,181 in 1929, and 199,878 in 1928.

From the comparable series of rates per 1,000 living population given in Table R, it will be observed that, though there is rather greater irregularity in the successive rates of natural increase, they have, over the whole range of years there given, followed on the whole a similar course to those followed by both birth and death-rates, and have declined with advancing years. The present rate of natural increase is 3·3 per 1,000 population. Lower rates were recorded in 1918 (0·4) and 1929 (2·9). It compares with a figure of approximately 10 per 1,000 in the years immediately preceding the war and over 14 per 1,000 in the period 1876–1880 when the birth-rate was at about its maximum. Stated in these terms the curve of natural increase expresses no more than that the crude birth-rate has hitherto been greater than the crude death-rate and that the decline in the former has advanced at a greater rate than the fall in the latter. From the general continuity of the series it may be inferred that the number of births will continue to exceed the deaths for some years, and that, apart from the results of migration, the population will continue to increase during such period though, naturally, at a slower pace.

What must not be inferred from mere excesses of births over deaths or from their alternative expressions as rates per 1,000 total population, is that the continuance of current conditions regarding fertility and mortality would be sufficient to ensure a continuous increase in the national population, both now and in the remote future.

The population as a whole is gradually getting older, and must continue to do so for many years to come, owing to the heavy falls which have occurred in both fertility and mortality during the past half century. The older sections where the death frequencies are naturally highest are becoming relatively more and more numerous. The crude death-rate (deaths per 1,000 population) must in consequence tend to rise in relation to the true underlying mortality and will thus encroach on the already much diminished margin of natural increase recorded above for recent years. The encroachment would be delayed by a real decrease in mortality or

an increase in fertility. But of the latter there seems little likelihood; while as regards the former, from the very nature of the case, the lower mortality falls the less room is there for it to fall further, and any practicable assistance from this source is, therefore, being gradually exhausted as the years go by. Moreover any change in the death-rate can have but a temporary effect on a situation which is primarily governed by the rate at which the population is being replenished at its source.

It was suggested in the 1926 Review that if we take as the standard of population stability, not the maintenance of a constant total but the production of a standard number of births, the standard being that number which would in their turn and at the rate they themselves were born produce offspring numerically equal to themselves, the standard would correspond to a crude birth-rate based on the present population of about 19½ per 1,000. This level has not been reached since 1923—the rate for 1932 is only 78 per cent. of the said standard—and the inevitable inference must be drawn that, while there is no increase, the future growth of population will tend to be at an ever diminishing rate up to the stage at which births and deaths are equal, the latter thereafter gaining the ascendance with a consequent decline in population.

Table XCVI shows for 1932 the rate of natural increase in various sections of the country, representing the combined effect

Table XCVI.—Natural Increase per 1,000 living, 1931 and 1932.

	1931.	1932.
England and Wales	3·5	3·3
Regional Summary—		
South-East	3·4	3·0
Greater London	3·9	3·5
Remainder of South-East	2·9	2·3
North	3·2	3·4
North I	6·1	6·4
North II	4·2	4·5
North III	2·7	2·7
North IV	2·3	2·5
Midland	4·6	4·1
Midland I	4·7	4·2
Midland II	4·6	4·2
East	3·4	2·9
South-West	1·0	0·8
Wales	3·4	3·2
Wales I	4·5	4·2
Wales II	0·7	0·8
Density Summary of All Areas outside Greater London—		
County Boroughs	3·4	3·5
Other Urban Districts	3·1	2·9
Rural Districts	3·7	3·4

of the several sectional birth and death-rates. Attention may be drawn to the large differences between the different sections of the regions, namely, North I (Durham and Northumberland), and North IV (Cheshire and Lancashire), and between Wales I (Brecknockshire, Carmarthenshire, Glamorganshire and Monmouthshire), and Wales II (the remainder of Wales).

Table S, which provides an analysis of migration from 1911 onwards, shows that the balance of movement, which for many years had been in the outward direction, has been reversed during the last three years. The net passenger movement into the United Kingdom was over 76,000 in 1932. This contrasts with 90,000 in 1931, and suggests that a still lower figure is likely in the next few years.

GREAT BRITAIN AND IRELAND.

Population.—The first complete census of the United Kingdom was taken in 1821, when the population numbered 20,893,584 persons; during the 100 years 1821–1921 this number increased by about 126 per cent., the sum of the final census figures for Great Britain and of the estimated population of Ireland in June, 1921, amounting to 47,123,196. Up to the date when the 1931 Census was taken there was a further increase of 4 per cent. The populations of the several portions of the United Kingdom for each census year from 1821 and for individual years from 1893 are set out in Table A.

Marriages.—The marriages during the year 1932 numbered 360,350, corresponding to a rate of 14·6 persons married per 1,000 of the total population. This rate was 0·3 per 1,000 below the corresponding rate in 1931 and the average rate in the ten years 1921–1930.

Births.—The live births registered in the year 1932 numbered 786,319, and were in the proportion of 15·9 per 1,000 of the total population. This rate was 0·6 below the corresponding rate in 1931 and 2·9 per 1,000 below the average in the ten years 1921–1930.

Deaths.—The deaths registered in the year 1932 numbered 610,970, and were in the proportion of 12·4 per 1,000 of the total population. This rate was 0·2 per 1,000 below the corresponding rate in 1931, and 0·1 per 1,000 below the average in the ten years 1921–1930.

Infant Mortality.—The deaths of infants under one year of age during the year 1932 numbered 53,917, representing a rate of 69 per 1,000 live births. This rate was the same as that recorded in 1931 but 5 per 1,000 live births below the average in the ten years 1921–1930.

Table XCVII.—Great Britain and Ireland. Vital Statistics. 1921–30, 1931 and 1932.

—	Great Britain and Ireland.	England and Wales.	Scotland.	Northern Ireland.	Irish Free State.
Estimated Population in the middle of the year 1932 (*in thousands*).					
Males	23,754	19,280	2,348	612	1,514
Females	25,566	20,921	2,535	650	1,460
Persons	49,320	40,201	4,883	1,262	2,974
Marriages.					
1931	360,350	307,184	33,178	6,959	13,029
Persons married per 1,000 living :—					
1921–1930	14·9	15·5	13·8	12·1	9·5
1931	14·9	15·6	13·5	11·8	8·9
1932	14·6	15·3	13·6	11·0	8·8
Births.					
1931	786,319	613,972	91,000	25,107	56,240
Per 1,000 living :—					
1921–1930	18·8	18·3	21·5	22·1	20·2
1931	16·5	15·8	19·0	20·5	19·3
1932	15·9	15·3	18·6	19·9	18·9
Deaths.					
1931	610,970	484,129	66,045	17,812	42,984
Per 1,000 living :—					
1921–1930	12·5	12·1	13·7	15·1	14·5
1931	12·6	12·3	13·3	14·4	14·5
1932	12·4	12·0	13·5	14·1	14·5
Deaths of Infants under 1 *year.*					
1931	53,917	39,933	7,840	2,084	4,060
Per 1,000 live births :—					
1921–1930	74	72	89	81	70
1931	69	66	82	73	69
1932	69	65	86	83	72

BIRTHS AND DEATHS AT SEA.

Marine Register Book.—In accordance with the Births and Deaths Registration Act of 1874 and the Merchant Shipping Act of 1894, Commanding Officers of ships trading to or from British ports are required to transmit returns of all births and deaths occurring on board their ships to the Registrar-General of Shipping and Seamen, who furnishes certified copies of such returns to the Registrars-General of Births and Deaths for England, Scotland, Northern Ireland and the Irish Free State. Similar returns are furnished to the Registrars-General of Births and Deaths by Officers in command of His Majesty's ships. These returns of births and deaths at sea constitute the " Marine Register Book." During the year 1932 this register was increased by the addition of 96 entries of birth and 1,158 entries of death.

REGISTRATIONS OF BIRTHS, DEATHS AND MARRIAGES.

Progress of Registration.—The names in the alphabetical indexes of births, deaths and marriages recorded in the national registers of England and Wales were increased during the year 1932 by 1,712,469, this addition raising the total of names in the indexes, which at the end of 1932 embraced a period of 95½ years, to 161,408,814 (Table T).

Searches and Certificates.—Besides the certified copies of the registered births, deaths and marriages kept in England and Wales pursuant to the Registration Acts, a large number of other registers and records are deposited in this Office under statute or other arrangement. A revised list of these various registers and records will be found on pages 149–155 of the Review for 1925. Searches may be made in any of these registers, and certificates obtained on payment of the prescribed fees.

Table XCVIII affords an indication of the extent to which the copies of the records kept in this Office have been utilized by the public for legal evidence of births, deaths and marriages since 1866.

The 464,985 gratuitous searches during 1932 comprise 40,958 searches made for the purpose of verifying the ages of persons aged 70 and upwards claiming old age (non-contributory) pensions and 206,510 for persons claiming pensions under the Old Age Contributory Pensions Acts, 1925 and 1929; 164,702 for verification purposes in connexion with claims to widows' and orphans' pensions under the Widows', Orphans', etc., Acts, 1925 and 1929; 15,092 to assist dependents of men of H.M. Forces to produce evidence of marriage and of the births of children in connexion with claims to naval and military pensions, separation allowances, etc., and to verify the ages of certain classes of youths and men in connexion with service in the Army, Navy and Air Force; 24,612 for verification of age, etc., in connexion with National Health and Unemployment Insurance; and 13,111 for other public purposes.

Table XCVIII.

Years.	Total Searches.	Gratuitous Searches.	Searches paid for by Fees.	Certificates Issued.	Amount Received.		
					£	s.	d.
1866 (52 weeks) ..	12,135	—	12,135	10,017	1,860	15	6
1875 (52 weeks) ..	26,356	—	26,356	20,282	3,879	15	6
1885 (52 weeks) ..	36,450	—	36,450	27,682	5,317	13	6
1895 (52 weeks) ..	53,289	—	53,289	35,727	7,200	12	6
1905 (52 weeks) ..	65,142	—	65,142	50,310	9,611	9	0
1906 (52 weeks) ..	64,340	—	64,340	49,429	9,458	6	0
1907 (52 weeks) ..	69,249	—	69,249	53,058	10,194	9	0
1908 (53 weeks) ..	72,370	—	72,370	54,870	10,550	8	0
1909 (52 weeks) ..	132,169	58,626*	73,543	54,674	10,568	8	0
1910 (52 weeks) ..	126,716	51,347	75,369	57,019	10,939	5	6
1911 (52 weeks) ..	140,496	65,491	75,005	56,347	10,875	6	0
1912 (52 weeks) ..	149,752	69,151	80,601	61,143	11,752	6	0
1913 (52 weeks) ..	150,540	71,225†	79,315	60,356	11,613	19	0
1914 (53 weeks) ..	188,040	104,593	83,447	65,817	12,482	11	6
1915 (52 weeks) ..	202,939	118,788	84,151	69,746	13,007	10	0
1916 (52 weeks) ..	303,334	197,669	105,665	88,265	16,379	17	0
1917 (52 weeks) ..	272,199	177,403	94,796	80,374	14,859	14	0
1918 (52 weeks) ..	255,462	146,504	108,958	90,898	16,889	0	0
1919 (52 weeks) ..	301,913	170,670	131,243	107,067	20,017	14	6
1920 (53 weeks) ..	284,194	149,447	134,747	108,684	20,415	0	0
1921 (52 weeks) ..	258,461	131,167	127,294	99,911	18,949	10	6
1922 (52 weeks) ..	263,047	143,088	119,959	90,400	19,028	12	6
1923 (52 weeks) ..	269,822	144,118	125,704	93,701	20,875	16	0
1924 (52 weeks) ..	337,521	178,990	158,531	121,890	27,109	15	0
1925 (53 weeks) ..	488,781	339,790	148,991	115,378	25,610	2	6
1926 (52 weeks) ..	541,916	407,687	134,229	105,560	23,305	6	6
1927 (52 weeks) ..	1,002,345	854,084	148,261	115,009	25,733	16	0
1928 (52 weeks) ..	600,678	452,953	147,725	114,731	25,678	17	0
1929 (52 weeks) ..	550,742	402,853	147,889	116,768	25,903	18	0
1930 (52 weeks) ..	1,207,344	1,053,047	154,297	121,549	26,964	12	0
1931 (53 weeks) ..	651,414	509,267	142,147	109,163	24,323	1	6
1932 (52 weeks) ..	598,624	464,985	133,639	104,420	23,086	13	0

* Including some searches made in 1908.

† In addition, there were 91,917 gratuitous searches made for National Insurance Audit purposes.

Offences against the Registration Acts.—In1932 twelve persons, on prosecution by order of the Registrar-General, were convicted of offences in connexion with registration. The offences for which convictions were obtained were as under :—

(*a*) For failing to register a birth .. .. None
(*b*) For failing to re-register a birth under the Legitimacy Act 1
(*c*) Giving false information when registering a birth, stillbirth or death 7
(*d*) Giving false information for the purpose of procuring marriage 4

In addition to the above cases proceedings were taken and convictions obtained by the Director of Public Prosecutions in cases reported through the Registrar-General, the offences including those of false registration and making false declarations when giving notice of marriage.

RE-REGISTRATION OF BIRTHS UNDER THE LEGITIMACY ACT, 1926.

Under the Legitimacy Act, 1926, an illegitimate child of parents who married after the birth of the child was, subject to certain conditions, legitimated; and the Act contained incidental provision to enable the births of such children to be re-registered. During the year 1932 authority was issued for the re-registration of the births of 3,144 children, being 367 less than the preceding year. It is still difficult to speak with any certainty as to the normal figure to be expected in future years, as a large number of applications are not made shortly after the marriage of the parents but are postponed until the children's birth certificates are required on entering or leaving school or attaining the age of 21.

The number of authorities issued during each quarter is as follows :—

	1927.	1928.	1929.	1930.	1931.	1932.
March quarter	1,265	1,401	1,075	996	981	854
June quarter	1,256	1,170	1,105	1,001	908	762
September quarter ..	1,381	1,242	933	1,006	797	709
December quarter ..	1,593	1,070	933	986	825	819
Totals	5,495	4,883	4,046	3,989	3,511	3,144

ADOPTION OF CHILDREN UNDER THE ADOPTION OF CHILDREN ACT, 1926.

The Adoption of Children Act, 1926, provided for the legal adoption of children by Order of the Court, and established a system of registration of such adoptions in an Adoption Register to be kept by the Registrar-General. The number of children whose adoption was registered during 1932 is 4,467. Table XCIX furnishes an analysis of the Adoption Orders made by reference to the several classes of Courts and the quarterly distribution of the total figure.

PARLIAMENTARY AND LOCAL GOVERNMENT ELECTORS.

The returns of Parliamentary and Local Government Electors published in Tables U and V summarise the Register of Electors compiled under the Representation of the People (Equal Franchise) Act of 1928 in respect of the qualifying period of three months ending on the 1st June, 1932.

The particulars have been taken from statements furnished to the Registrar-General by the Registration Officers of the several areas, or in the case of a University forming the whole or part of a University constituency, by the Chancellor, Registrar or other officer dealing with Parliamentary registration.

Table XCIX.

Year.	Number of Adoption Orders dealt with.				Corresponding number of children, *i.e.*, Entries made in Adopted Children Register.				
	Total.	High Court.	County Court.	Court of Summary Jurisdiction.	Year's Total.	March Quarter.	June Quarter.	September Quarter.	December Quarter.
1927 ..	2,943	133	184	2,626	2,967	329	990	774	874
1928 ..	3,278	124	236	2,918	3,303	851	844	705	903
1929 ..	3,294	72	224	2,998	3,307	722	787	857	941
1930 ..	4,511	74	317	4,120	4,517	1,084	1,196	983	1,254
1931 ..	4,119	68	274	3,777	4,127	873	1,049	1,046	1,159
1932 ..	4,465	38	264	4,163	4,467	1,073	1,178	1,000	1,216

Registration Officers were instructed that the return of Parliamentary Electors should be the net total of individual Parliamentary Electors in each constituency, all duplicate entries being omitted from the count. In the case of Local Government Electors the number of names on the register was to be given. The instructions further directed that the names of " out voters " (that is, persons whose names appear twice in the Register, by reason of a claim under Rule 24 of the First Schedule to the 1918 Act) should be counted once only in respect of that qualification.

Table U refers to Parliamentary electors, and shows for each Parliamentary constituency in England and Wales, including the University constituencies, the numbers of males and females on the Register, and also the numbers registered in respect of business premises qualifications and the numbers on the absent voters list.

Table V refers to Local Government electors, and shows the numbers of each sex registered in respect of every local government area, *i.e.*, county borough, metropolitan borough, municipal borough, urban district and rural district in England and Wales.

The figures for the whole country are summarised in Table C and are shown in conjunction with the figures of previous Registers made since the passing of the 1918 Act.

Table C.—Parliamentary and Local Government Electors, 1918-1932.

Register.	Parliamentary Register (including University Constituencies).					Local Government Register.		
	Persons.	Males.	Females.	Business Premises Qualifications. — Males only up to 1928. Persons from 1929 (included in Cols. *b-d*).	Persons on Absent Voters' List (included in Cols. *b-d*).	Persons.	Males.	Females.
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*k*
1918 (Autumn)	17,222,983	10,281,054	6,941,929	159,013	3,362,028	13,930,130	6,998,665	6,931,465
1919 „	17,465,638	10,234,887	7,230,751	205,461	1,157,061	14,361,123	7,176,019	7,185,104
1920 „	17,584,552	10,176,750	7,407,802	203,471	254,866	14,712,453	7,364,912	7,347,541
1921 „	17,795,784	10,237,344	7,558,440	194,737	185,227	15,019,348	7,527,861	7,491,487
1922 „	18,001,692	10,312,248	7,689,444	199,904	162,901	15,322,625	7,700,108	7,622,517
1923 „	18,388,833	10,498,179	7,890,654	208,694	151,953	15,691,962	7,873,461	7,818,501
1924 „	18,806,842	10,719,922	8,086,920	211,257	165,564	16,015,033	8,007,384	8,007,649
1925 „	19,167,275	10,897,545	8,269,730	217,509	167,406	16,345,290	8,157,607	8,187,683
1926 „	19,346,954	10,982,128	8,364,826	206,199	161,460	16,574,549	8,284,181	8,290,368
1927 „	19,585,972	11,094,031	8,491,941	205,538	155,436	16,865,666	8,444,718	8,420,948
1928 „	19,866,649	11,226,396	8,640,253	205,793	154,432	17,179,487	8,608,017	8,571,470
1929 (Spring)	25,095,793	11,866,794	13,228,999	371,594	174,731	18,620,395	8,825,225	9,795,170
1930 (Autumn)	25,730,507	12,101,108	13,629,399	364,762	174,270	18,879,147	8,905,768	9,973,379
1931 „	26,135,944	12,288,852	13,847,092	365,090	174,274	19,156,018	9,036,870	10,119,148
1932 „	26,439,713	12,440,109	13,999,604	367,684	172,234	19,418,156	9,160,409	10,257,747

It will be observed that the sex distribution of the electorate which, in respect of the Parliamentary Register, was formerly in the proportion of about 1·3 men to each woman, was completely altered by The Representation of the People (Equal Franchise) Act of 1928. That Act, which placed women on the same footing as men in regard to the franchise, added about 4½ million women to the Parliamentary electorate and nearly 1¼ million to the Local Government electorate, and as a consequence women now outnumber men by approximately 12 per cent. in the case of each. The somewhat abnormal increase in the male electorate between 1928 and 1929—an interval of six months, it should be noted, in place of the usual 12 months period—cannot be explained by the new Act which left the male franchise unaltered apart from a trifling addition—approximately 3,700—in respect of men registered in respect of their wives' occupation of business premises, and must be mainly ascribed to the special procedure, adopted for the first time in connexion with the 1929 register, of the universal service of a compulsory form of return which disclosed and made good omissions from the registers on the pre-1928 Act franchise.

Including a certain amount of plural representation in the case of those persons registered in more than one constituency by reason of their possessing the necessary residence or business qualification, or being entitled to be registered in respect of a University constituency, the total Parliamentary electorate of 26,439,713 represents 65·8 per cent. of the estimated total population, or 64·5 per cent. of the male and 66·9 per cent. of the female population; in the case of the rather more restricted Local Government

franchise, the numbers are somewhat less and the proportions correspondingly lower, the total electorate being 48·3 per cent. of the whole population, or 47·5 per cent., and 49·0 per cent. in the case of males and females separately.

Of the total of the Parliamentary Registers, the bulk, viz. 26,347,412, represents the aggregate voting strength in the 509 geographical constituencies into which England and Wales is divided, the balance of 92,301 representing the five University constituencies. Eleven of the Boroughs, and three University constituencies, however, each return two members, so that the total representation in Parliament is by 528 members, 520 in respect of the geographical divisions, with an average electorate of 50,668 per member and eight in respect of the Universities, with an average electorate of 11,538.

MISCELLANEOUS.

Other tables appearing in Part II of the Statistical Review which have not formed the subject of special comment in the foregoing pages are as follows :—

Table W, showing the Population, Births, Deaths, Infant Mortality and Marriages, with Rates in British Islands and Dominions, 1932.

Tables X and Y, showing the census populations respectively of the British Empire, Dominions, etc., and of Foreign Countries.

Appendix, showing changes in boundaries of various local government districts and the areas and populations involved.

WEATHER OF THE YEAR 1932.

ENGLAND AND WALES.

The year 1932 was chiefly distinguished by a lack of sunshine. Other striking features were the droughts of February and June and the excessive wetness of May. The average rainfall for the year over England and Wales as a whole differed little from the normal but individual months showed outstanding variations. February was notably dry and although the general precipitation slightly exceeded that of February, 1921, in many places February, 1932, was the driest experienced since that of 1891. Locally in South-west England no measurable precipitation was recorded. This dry period lasted from about January 20th to March 3rd. June was also dry and the deficiency would have been more pronounced if heavy rain had not occurred during the night of the 30th. An absolute drought of 29 days was noted at Cheltenham from May 30th to June 27th and some other places had one of 28 days. October was excessively wet and May ranks as the wettest month of that name over England and Wales as a whole for the past 160 years. Of the other months, broadly speaking, April, July and September were wet and March, August, November and December

dry. In January there was a sharp contrast between the amounts recorded in the west and the east. More than twice the normal rainfall was registered at some places in the western half, while less than half the normal fell locally on the east coast. Although March was dry on the whole, more than the normal was recorded in England N.E., and in August totals were variable on account of thunderstorms. Except in Cumberland, December was markedly dry, particularly in the east and south-east, where less than 20 per cent. of the normal was recorded in some places. Thunderstorms were widespread and numerous in July; one of the most remarkable being that at Cranwell in Lincolnshire on the 11th, when 126 mm. fell in 120 minutes.

Perhaps the most notable feature of the year was the deficiency of sunshine, the percentage of the normal for the year being only 86. No district recorded more than the normal, the values varying from 83 in England E. to 90 in England N.W. At Kew Observatory the total, 1,257 hours, was the lowest since 1889. Considering the country as a whole compared with the normals, December was the sunniest month and May and July were the dullest, May being the dullest on record in many parts of England. Of the other months, April, August, September and November were mainly dull and January, March and June were sunny in some districts. January was exceptionally sunny in northern England.

Annual mean temperature was slightly above the normal in all districts, the most conspicuous features being the mildness of the first three weeks of January and the latter half of December and the excessive heat of August. Temperature rose above 90°F. at many places in the south and the midlands on August 19th and touched 97°F. locally. February was cold in the south and the spring months March to May were all rather cool as was also October. The extreme temperatures for the year were 97°F. at Halstead, Camden Square, Regent's Park, Tottenham and Enfield on August 19th and 12°F. at Rickmansworth on January 1st and March 13th.

Further information.—Tables relating to meteorological elements are given in Part I (Tables 30–32). A description of the weather of each month appears in the Quarterly Return of the Registrar-General and a summary of the observations at Greenwich for each month of the year appears in Table XI of the Return for the fourth quarter.

Charts showing the distribution of pressure, temperature, sunshine and rainfall for the year, together with summaries of the observations at numerous stations will be found in the Annual Summary of the Monthly Weather Report issued by the Meteorological Office.

A list of the publications of the Meteorological Office will be found in " List M " issued by H.M. Stationery Office.

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